

# AMERICAN RAILROAD JOURNAL.

## STEAM NAVIGATION, COMMERCE, FINANCE, ENGINEERING, BANKING, MINING, MANUFACTURES.

EDITED BY  
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afterward appointed a "leveller" on the canal. He had actually to stand upon a stool to look through the instrument. Many of the important works in that canal were constructed after drawings made by this boy; and at the age of fifteen, we are told, he was in possession of accurate plans of the whole work, which had been drawn by his own hand.

But taking a fancy to military life, he was separated for a time from his friend and patron. He entered the army as an ensign; and his eminent skill at drawing soon placed him in the line of promotion. After a rigid examination, Ericsson was appointed to take charge of a new survey of the northern part of Sweden. In this occasion, it is said, he was able to repeat Euclid *verbatim*, not by the exercise of memory, but by his perfect mastery of the science of geometry. He entered on the task with his accustomed energy and skill, as is shown by the fact that in the Swedish archives detailed maps of more than fifty square miles, were executed by his own hand, and are still shown. Having engaged to furnish drawings for an illustrated work on Canals, he brought out a new machine for the purpose, which worked very successfully.

The idea of producing mechanical power by means of *flame* presented itself shortly afterward to his mind, and experiments made in bringing out a new engine resulted so favorably that Ericsson applied to go to England to bring out his new invention. Thither he repaired in the early part of 1826. But it was found that, owing to the different kind of fuel used there, his engine would not work, and he was compelled to abandon it for the time. He next turned his attention to the production of an artificial draught on the steam-boiler, associating himself with Mr. Braithwaite for this purpose. By the time he had completed this invention (1829) an opportunity was presented to test its value. This was the celebrated offer of a premium made by the directors of the Liverpool and Manchester Railroad. In the brief space of *seven weeks*, according to Mr. Sargent, he planned an engine, executed the drawings and had the machine completed, which entered into competition with Mr. Stephenson's "Rocket" and Hackworth's "Sanspareil." On the day of trial

Ericsson's "Novelty" "darted along the track at the rate of fifty miles an hour."

In 1842, Ericsson was first brought into notice in this country by his successful application of steam to fire engines, which gained him the large gold medal offered by the Mechanics Institute of this city. Nine years previously, however, he had brought out his Caloric engine, of which one of five horse power was set to work, its performances having been witnessed by Sir Richard Philips, Dr. Ure and Professor Farraday. The last named undertook to deliver a public lecture on the subject; but just before commencing he discovered that he had misunderstood the expansive principle of the machine! The government sent Mr. Brunel, then of Thames tunnel and since of Great Eastern fame, to examine the engine; but this celebrated engineer reported adversely. Indeed, the ones first built were far from being as perfect as the present; the high temperature which had to be kept up soon destroyed the working parts by oxydation. It was not till some years subsequently that the inventor finally succeeded in his long cherished design to accomplish motion without the use of steam, wind, or water.

We next hear of him in connection with the propeller—an idea which, it is said, he borrowed directly from Nature, in connection with the movements of birds, fishes and insects. The application of the screw as a means of propulsion, we are aware, is traced back as far as Archimedes, to say nothing of sundry modern claimants. Let the idea have originated with one or another, Ericsson was the first to bring it publicly to the test of actual experiment. He constructed a boat two feet long which he tried in a basin in London, the little vessel making three miles an hour on her first trip. A boat forty feet in length was next built and placed on the Thames, with the most satisfactory results, she having made *ten* miles an hour. This feat again excited attention, and the Lords of the Admiralty made a trip to test the qualities of the new motor. But all the recognition gained from that source was shrugs of the shoulders and shakes of the head. The Admiralty took no notice of the invention; and it is added that the whole engineering corps of the Kingdom arrayed itself against the innovation.

But keener eyes had been fixed upon the per-

### American Railroad Journal.

New York, Saturday, July 12, 1862.

#### Ericsson and His Inventions.

In the July number of the "Atlantic Monthly" we find an article narrating at considerable length the career of Ericsson, whose celebrity as an inventor is now world-wide. As a worker in iron, it may be said that he was "born in the purple," having first seen the light (in 1803) among the iron mountains of Sweden, in which his father was a mining proprietor. At an early age he was a close student of the extensive and complicated machinery erected in that neighborhood, and which had been constructed by men of the highest scientific attainments. We accordingly hear of him inventing a saw-mill and other contrivances, when about the age of ten years. These together with some difficult drawings executed by instruments of his own invention, attracted the notice of Count Platen, who was an intimate personal friend of King Bernadotte and the Clinton of Sweden, having planned and executed the ship canal across the peninsula between the Cattegat and the Baltic. Platen earnestly urged him to persevere, assuring him that he "would one day produce something extraordinary." Accordingly Ericsson, then less than twelve years old, was made a cadet in the corps of engineers, and soon

formances of the "Little Flying Devil," as this boat was called by the populace. The American Consul at Liverpool, Mr. Francis B. Ogden, had seen and comprehended the value of the invention. He introduced Ericsson to Captain (now Commodore) Stockton of the American navy, who invited the inventor to this country, and brought the subject to the notice of Congress. He accepted the invitation and, in 1839, came to the United States, fixing his residence in this city. The "Princeton," built under his supervision, was completed in 1844.

We cannot here do more than glance at the various inventions and improvements made by Ericsson since that date. These comprise the telescopic smoke-pipe, the semi-cylindrical form of the steam-engine, a distance-measuring instrument for the navy, a self-acting gun-lock, the wrought iron gun carriage. It should be added that by virtue of his arrangements the boiler and engines of the "Princeton" were placed below the water line, for the first time. At the great exhibition in 1851, he received the prize medal for various other instruments than those named above—the hydrostatic gauge, the reciprocating fluid-meter, the alarm barometer, the pyrometer, the rotary fluid-meter, and a sea-level for taking soundings without rounding the vessel to the wind.

We need not refer to particulars connected with his caloric engine on board the vessel which was named after himself. Though that experiment resulted unsuccessfully, it is enough that now more than five hundred caloric engines are running in various parts of the country, being applied to nearly every use that requires but a moderate power. Still less is it necessary to refer to the "Monitor," whose performances saved to the nation its control of the Chesapeake and all the rivers running into it. Ericsson's usefulness and fame are established. We could wish that his pecuniary compensation had been still more liberal than it has been; and that a claim upon the Government, incurred while superintending the "Princeton," had been honorably discharged a dozen years ago, as it ought to have been. It is to be hoped that Congress will have no hesitation in ordering it paid, on the principle of better late than never.

#### MICHIGAN CENTRAL RAILROAD.

The earnings of this road for the year ending May 31, 1862, were:

From freight . . . . .	\$1,559,060 98
" passengers . . . . .	724,915 48
" miscellaneous . . . . .	77,264 96
	\$2,361,241 42

And the expenses were:

Repairs of road . . . . .	\$262,710 91
" buildings . . . . .	51,907 96
" locomotives . . . . .	97,523 94
" cars . . . . .	116,682 23
Locomotive service . . . . .	54,095 78
Train . . . . .	42,733 76
Station . . . . .	259,777 33
Fuel . . . . .	111,592 16
Oil and waste . . . . .	19,050 39
Stationery and printing . . . . .	11,908 44
Taxes . . . . .	82,837 81
Telegraph . . . . .	12,489 45
Miscellaneous . . . . .	25,842 78
	1,149,152 94

Net earnings . . . . . \$1,212,088 48

The ratio of expenses to earnings, less taxes, is 41.1 per cent. Last year it was 51 per cent. In

1860, 53.7. In 1859, 53.4. In 1858, 59.6. In 1857, 64.6.

Compared with the year ending May 31, 1861, the following result is shown:

Increase in freight earnings . . . . .	\$340,874 69
" miscellaneous do . . . . .	12,627 17
	\$353,501 86
Decrease in passenger earnings . . . . .	50,818 05
Net increase of gross earnings . . . . .	\$303,188 81
Increase in expenses . . . . .	11,428 59
Making the increase in net earnings . . . . .	\$291,760 22

The increase in the earnings of the past over those of the preceding year is equal to 14 1/4 per cent.; and over the year ending May 31, 1860, nearly 29 per cent.

The increase in earnings from freight shows a gain over last year of about 28 per cent.; and over the year ending May 31, 1860, of upwards of 61 per cent. The increase in this branch has been principally from eastward bound freight, which has formed so large a per centage of the amount moved, as to cause the mileage of freight trains to show an increase also of about 24 per cent. upon the previous year. The total tons moved as compared with last year, shows a gain of 23 per cent. The gain in earnings from freight is about equally divided between wheat and flour and other freights.

The total number of tons of freight moved has been 463,112. Average number of tons carried per train per mile, 121.15. Average distance freight is carried, 161 miles. Freight earnings per ton per mile, 1.91 cents. Tons carried one mile eastward, 64,863,488; westward, 16,869,986—total tons carried one mile, 81,733,474. The proportion of tonnage carried eastward is 79.36, against 20.64 carried westward.

The number of local passengers carried east was 124,527; do. west, 129,009; through passengers carried east, 23,252; do. west, 22,935; emigrants, 9,105—total 308,828. Average number of miles travelled by each passenger, 93.59. Passenger earnings per passenger per mile, 2.51 cents. Passengers carried one mile, 28,905,678.

The passenger traffic, both through and way, shows a considerable falling off, in comparison with the previous year. This line is not alone in unfavorable comparison in its passenger traffic: many others have exhibited similar results for the last twelve months. Upon some lines more favorably situated geographically, the transportation of troops has more than compensated for the falling off in the ordinary business, while upon this the transportation of troops and munitions of war has been almost exclusively of a local nature, and quite limited in amount.

The tonnage of wheat and flour is nearly double that of the year ending May 31, 1860. The movement of neat cattle varies but little from last year, amounting this year to 57,155 head, while the number of live hogs moved has more than doubled, reaching the number of 126,778.

The proportion of tonnage in each direction is more unequal than that of the previous year; the per cent. moved westward having fallen from 30 to less than 21, increasing quite largely the hauling of empty cars; but even with this disadvantage the average load has been raised from 118.83 to 121.15 tons, showing the machinery to have

been in efficient condition, and the trains judiciously managed. The report says:

Our experience of the past year has strengthened our conviction that the more intelligent railroad managers become in respect to the details of their working expenses, and the less they act on general impressions, the more sure is their progress towards economical results; and when the same thorough and systematic attention to details is given to the management of this property throughout the country, which, applied to manufactures, has reduced the cost of making a yard of cloth from thirty to three cents, it will add much to the substantial value of this kind of investment.

The considerable improvement in the economy of working has not been made at the expense of the permanent property or rolling stock of the company, but rather by a careful attention in details, the ascertainment of the cost in detail, of working many well managed lines, and endeavoring to bring each part of our expenditures as low as the lowest, and thus combining the good points of all as a model from which to improve, as much as our circumstances will allow.

We do not consider the fact that the gross earnings have been increased \$303,188 81, with an increased expenditure of only \$17,179 64, as evidence of greater economy, except in view of the fact that the average rates received for the work performed have not been higher than those of the previous year. Nor do we assume that the line is worked economically, because the working expenses are less than half the gross earnings.

We are aware that the short hand judgment ordinarily adopted, would decide a road to be well managed, which used 48 per cent. of its gross earnings in operating expenses, and another to be ill-managed if it used 60 per cent., and this even though the former received four and the latter but two cents a mile for its traffic, which would bring the expenses of the approved road 60 per cent. higher than the other.

The average rate received during the year was, for freight, per ton per mile, 1.91 cents; per passenger per mile, 2.51 cents. The statistics connected with the working expenses are not so fully made up as to furnish an exact division between the freight and passenger departments; but assuming it to be relatively as last year, the cost per passenger per mile has been 1.163 cents, and that of freight per ton per mile .893 of a cent.

In forming a judgment upon what the cost of operating ought to be, certain characteristics of the traffic which materially effect it should be carefully considered.

Where the physical character of roads is nearly similar, the application of the following considerations is quite apparent.

All other things being equal, the road which has the largest traffic per mile, can be worked at the cheapest rate, because its fixed expenses arising from the decay of perishable materials and the like, are spread over a larger amount of work to be performed.

All other things being equal, the road having the largest passenger business in proportion to the passenger trains it is obliged to run, can carry passengers the cheapest, the additional number adding comparatively little to the cost of the train. When the freight amounts to more than one train per day, the size of these trains should be more uniform than is practicable in the passenger traffic, for nothing can be gained by multiplying their number beyond the requirements of the tonnage.

Other things being equal, the road whose business in both directions is most equal, can work at the cheapest rate. The cost of carrying freight in cars which would otherwise return empty is comparatively small.

Other things being equal, the road whose average haul of freight is the longest, can carry it at the cheapest rate, as the receiving and delivering expenses will add less to the mileage cost.

Other things being equal, the road whose business throughout the year is most uniform, can do it at the cheapest rate.

INCOME ACCOUNT.	
Balance from previous year .....	\$38,434 24
Receipts from freight.. \$1,562,200 56	
" passen'rs 727,763 92	
" miscel.. 77,624 09	
	2,368,588 57

\$2,407,022 81

Expenses, as above .....	\$1,149,152 92
Dividend, 3 per cent. Feb. 5, 1862.. 181,713 00	
Payment to sinking funds..... 84,500 00	
Interest and exchange. .... 679,463 00	
Balance to new account .....	312,193 78

\$2,407,022 81

From which it appears that after paying to the stockholders during the year a dividend of three per cent., making the annual payment of \$84,500 to the sinking funds, together with the necessary disbursements for operating, taxes and interest, there stands to the credit of income account a balance amounting to \$312,193 78. The sum to the credit of this account at the same period of last year was \$38,434 24—thus showing a net improvement of \$273,759 54.

#### GENERAL STATEMENT.

Capital stock .....	\$6,057,710 00
6 per cent. sterling bonds unconvert. 367,488 89	
8 " " " convertible .. 500,000 00	
8 " " bonds convertible .. 2,598,000 00	
8 " " " sink.fund 4,434,000 00	
Balance to credit of income account 312,193 78	
Unpaid dividends .....	1,781 00

\$14,371,173 67

Construction No. 1, purchase of road. \$2,000,000 00	
" No. 2, expend'e since.. 10,847,238 17	
Cash on hand .....	\$59,595 58
Loaned on call .....	46,550 00
U. S. Gov. certificates of indebtedness. .... 100,000 00	

206,145 58

Accounts and bills receivable..... 134,567 35	
Assets in hands of Gen. Receiver .. 25,701 99	
" " General Sup't... 34,755 52	
New Albany and Salem R. R. stock. 609,763 99	
Joliet and N. Indiana R. R. stock.. 168,225 00	
" " construction. 40,768 18	
Steamboats .....	304,007 89

\$14,371,173 67

The floating debt, which a year since was \$125,000, has been liquidated; the company is now entirely free from unfunded debt. There has been paid during the year \$250,000 of unconvertible plain bonds, which matured on the 15th of May last, and the same amount of sinking fund bonds has been sold at prices ranging very nearly at par.

The bonded debt has been increased during the year to the extent of \$31,000, which increase has been caused by the sale of bonds heretofore held by the company. The bonded debt now stands at the limit of the mortgage, and all of the bonds are secured by the first and only mortgage upon the road for \$8,000,000, while the principle part of those maturing in 1882 are also secured by the sinking funds.

The total bonded debt of the company is \$7,999,488 89—maturing as follows:

In 1869. ....	\$3,071,000 00
In 1872. ....	467,488 89
In 1882. ....	4,461,000 00

\$7,999,488 86

Capital stock has been reduced \$74 by the purchase and cancellation by the company of that amount of fractional stock scrip issued in 1855. There is still \$610 of this scrip outstanding which the company will purchase at par when presented.

The reduction\* of \$7,711 99 in "Steamboats" account is caused by the sale of sundry effects belonging to the same, the proceeds of which have been passed to the credit of their construction.

The equipment of the road consists of 98 locomotives; 85 passenger, 23 baggage, 1,284 freight, and 262 gravel and other cars.

The number of miles run by engines with passenger trains has been 507,635; with freight trains, 672,627; with working trains, 156,396—total 1,338,655.

The general condition of the road in all respects is fully up to the standard, and in some particulars beyond that of the commencement of the year. The renewals in the different departments have been in the aggregate about the same as the year previous. Some of the most prominent items are: 35 miles of new rails; 17 miles welded rails; 7,415 new chairs; 82 tons new spike; 66,499 ties; 1,400 cedar telegraph poles; 62 cattle guards; 4 highway bridges; 37 miles new fence; 3,571 feet new side tracks; enlargement of engine house at Michigan City; 4 new small passenger houses, 116 new large freight cars; besides a considerable amount of new work in smaller items.

The amount expended for repairs of locomotives is somewhat larger than last year, but the service rendered is also larger, and the improved condition of the machinery fully accounts for the increased cost.

The expenditures for repairs of cars differs but little from the aggregate of last year, but the service rendered in this branch is larger by 3,000,000 miles, or 21 per cent.

In the locomotive, train and station service the aggregate expenses are but 5 per cent. above the previous year, while the increase of freight earnings is 28 per cent., and 23 per cent. in tons hauled.

In the expenditures for fuel, oil and waste, there has been a decided change for the better, as with the largely increased service rendered by engines and cars—9 per cent. in mileage of engines and 21 per cent. in car mileage—there has been a saving in total cost of these items as compared with the previous year, of 18 per cent.

The directors chosen at the annual meeting June 23, 1862, are as follows:

*President*—JOHN W. BROOKS, Boston.

*Vice-President*—H. H. HUNNEWELL, Boston.

*Directors*—John W. Brooks, Nathaniel Thayer, R. B. Forbes, H. H. Hunnewell, Elon Farnsworth, Erastus Corning, D. D. Williamson, G. F. Talman.

*Treasurer*—ISAAC LIVERMORE, Boston.

*Superintendent*—R. N. RICE, Detroit.

*Auditor*—WILLIAM BOOT.

#### Delaware and Raritan Railroad.

This road is now approaching completion, and is expected to be soon open for travel. By this route passengers will be carried from New York to Philadelphia for \$2. The depot in New York will be at the foot of Murray street, from which point the boat will run to Port Monmouth, on the Raritan Bay, a distance of 28 miles from the city. From the latter place the railroad will run to Kaighn's Point, near Camden. The following is the route with the distances:—From New York to Port Monmouth, by steamboat, 28 miles; Port Monmouth to Red Bank 5 miles; Red Bank to Eatontown, 3 miles; Eatontown to Farmingdale, 5 miles; Farmingdale to Squankum, 5 miles; Squankum to Bergen Iron Works, 5 miles; Bergen Iron Works to Manchester 5 miles; Manchester to Hilliard's 13 miles; Hilliard's to Butler House, 7 miles; Butler House to Atsion, 12 miles; Atsion to

Jackson, 6 miles; and Jackson to Kaighn's Point, 21 miles—making a total of 110 miles.—*Trenton True American.*

#### Rights of Railroad Companies to Damages Resulting from the Taking of their Property for Public Uses.

CONSTRUCTION OF COMMON ROADS: RAILROAD COMPANIES ENTITLED TO DAMAGES CAUSED BY THE CROSSINGS OF SUCH ROADS OVER THEIR TRACKS.

The Old Colony and Fall Railroad Company filed two petitions, (one before their union and the other after) for the assessment of damages occasioned by the laying out of two highways across their railroad in Abington.

At the trial of each case before a Sheriff's Jury, the petitioners introduced warranty deeds from the former owners of a strip of land four rods wide, along which their railroad was laid, and which was crossed by the highway in question. They offered evidence of the value of the land, and claimed damages for the taking of said land; for increased liability to damage from accidents from collision and otherwise by reason of the laying out of said highway at grade over their track; for expense of making and maintaining sign boards at said crossings: for making and maintaining cattle guards alleged to be rendered necessary by reason of said crossing at grade; for expense of planking and keeping the planks in repair where the highway crosses their track; for increased expense for ringing bell as required by law; and for liability of being ordered by county Commissioners to build a bridge for the highway over the railroad track."

The respondents contended that although the deeds in form conveyed a fee, the petitioners had an easement only, so far as was necessary for the purposes of their railroad, and were not entitled to recover any damages of the county for merely crossing their railroad by a highway at grade; and that if the county was liable at all it was not liable for any of the items of damage claimed, and objected to all the evidence offered. No testimony was introduced by them to show any benefit to the petitioners by way of set-off. But the Sheriff, against the petitioners objection, permitted the respondents' counsel in the second case to argue that the jury might allow by way of set-off, the benefit, if any, which would result from said highway to the property of the plaintiffs, as a feeder to said railroad; and, at the request of the respondents, instructed the jury "that in estimating the damages sustained by the petitioners in their property by the laying out of said highway, they should take into consideration all the damage done to the petitioners, whether by taking their property or injuring it in any manner; and should allow by way of set-off, the benefit, if any, to the property of the plaintiffs, by reason of such laying out."

The jury, in each case, returned a verdict for the respondents, which was accepted by the Court of Common Pleas; and the petitioners then appealed to the Supreme Court of Massachusetts, who now set aside the verdicts of the Sheriff's jury; holding that a railroad company is entitled to damages for land taken, by the laying out of a public highway across its railroad, subject to its use for said road; and for the expense of erecting and maintaining railroad signs and cattle guards at the crossing, and of flooring the same, and keep-

ing it in repair; but not for any increased liability from accidents, for the increased expense of ringing the bell, or for its liability to be ordered by the county commissioners to build a bridge for the highway over its track.

The following is the opinion, rendered at the decision of the case.

**SHAW, C. J.**—We believe it has never yet been judicially determined that a railroad corporation who have, in the ordinary course of business, under an act of incorporation, built a road, and have it in full operation, can recover damages for injuries occasioned by laying out other ways, say public highways and townways, turnpikes and other railroads over it. But the tendency of judicial opinion has been that they may. The language of the constitution, in which the right to damages occasioned by the exercise of the power of *eminent domain*, is given to all persons, whose property is appropriated to the public use, and not previously acquired (as it lawfully may be) by purchase of the owner, is strong and decisive in favor of such a claim. Nor is it in our judgment material whether the property thus taken or appropriated is real estate held in fee, or an easement or lien upon real estate or personal property. The word "property" in the tenth article of the Bill of Rights, which provides that "whenever the public exigencies require that the property of any individual should be appropriated to public uses, he shall receive a reasonable compensation therefor," should have such a liberal construction as to include every valuable interest which can be enjoyed as property and recognized as such. Nor is it material whether the property is removed from the possession of the owner, or in any respect changes hands; if it is of such a character and so situated that the exercise of the public use of it, as warranted by the Legislature, does in its necessary natural consequences, affect the property, by taking it from the owner, or depriving him of the possession of some beneficial enjoyment of it, then it is "appropriated" to the public use by competent authority, and the owner is entitled to compensation. It is perfectly well settled that property thus taken for a railroad, though it is through the medium of a corporation, who provide the capital, build and conduct the works, and find their reimbursement in tolls, fares and freights given by statute, is taken for a public use. If it could be held that because the power and the property were given to a corporation, it was not for a public object or purpose, but for the benefit of the corporation and their members, like that of a bank or trading company, then it would be an appropriation of private property by the Legislature, under the pretence of the power of eminent domain, and plainly unconstitutional and void. No; the vague notion that damages cannot be given in favor of a railroad company whose road is crossed by another public way, we think, is founded on another consideration; that inasmuch as the track of a railroad has been already appropriated to one public use, the authorizing of its further public use is not an appropriation of private property to public use, and therefore affords no claim for damages. There is something plausible in this; but on examination we think it does not warrant the distinction in support of which it is relied on. The theory of railroad corporations is that their compensation in freights and pas-

enger's fares is computed with reference to the entire cost of construction, including the land appropriated for the purpose. A similar view was taken of the subject by this court in the case of Commonwealth vs. Boston and Maine Railroad Company; in which the whole plan and scheme upon which the public easement of railroads is acquired in Massachusetts, as set forth in the revised statutes were stated; and these views we believe have been substantially adopted and acted upon since.

The petitioners in the present case were incorporated in the usual form, and were made subject to the duties and obligations and entitled to all the rights and privileges and immunities in the revised statutes. The court are therefore of opinion that a railroad company whose tracks have been crossed by public ways may sustain and recover damages in the usual modes provided for others sustaining damages by the appropriation of their property. Here were two distinct cases of so laying out a highway across the petitioners road, in each of which the jury found that the railroad company were not entitled to any damages; and these verdicts having been accepted by the Court of Common Pleas, this court is of opinion that these judgments are erroneous, and they must be set aside and new warrants issued. As instructions were given provisionally, in one or both of these cases, by the sheriff as to the nature and quantum of damages to be recovered, and these questions therefore, have been brought before the court in the argument; so far as the court have formed opinions, they are briefly stated, that they may have their proper influence on the new trials. The petitioners are entitled to recover damages for taking their land for the purpose of a highway, subject however to its use for a railroad; for the expense of erecting and maintaining signs required by law at the crossing; for making and maintaining cattle guards at the crossing, if necessary; and for the expense of flooring the crossing, and keeping the planks in repair.

The petitioners are not entitled to recover for the other elements of damage, which were allowed by the sheriff in the second case. The respondents are not entitled to set-off any supposed benefit which may accrue to the petitioners by reason of an increase of travel on the railroad, caused by the construction of the highway. *Verdicts set aside.*

#### A Large Iron Casting.

Messrs. I. P. Morris, Towne & Co., of the Port Richmond Iron Works, made yesterday at their Foundry in Kensington, the heaviest casting ever run in this State. The casting was for an anvil block for a seven ton steam hammer in course of construction by these gentlemen for the Lackawanna Iron and Coal Company at Scranton. The casting weighs 32 tons, which, together with the other work cast the same day, made the aggregate weight of iron in the heat about ninety thousand pounds. This immense mass was melted in one of McKenzie's patent cupolas in four hours and five minutes.

The mould for the anvil block was put together under the immediate supervision of Mr. James T. Bradshaw, the foreman of the foundry. The fluid metal, about thirty-three tons, was contained in a large reservoir, holding about eighteen tons, and two kettles and two ladles swinging on the cranes, holding respectively nine and six tons. The time occupied in running this large casting was four minutes from the time the reservoir was tapped until the mould was full.—*Philadelphia Inquirer.*

#### The Iron Manufacture of Great Britain.

The iron manufacture of Great Britain has exhibited a rise more remarkable than that of any other human industry. In 1750, the quantity of pig iron produced did not exceed 30,000 tons. In 1800, it was increased to 180,000 tons, and in 1825, to 581,367 tons. In 1826, the duties upon the importation of foreign iron were removed or rendered nominal, since which the production of iron has most rapidly increased, as the following table will show:

Furnaces in Blast.	Pig Iron made, tons.	Furnaces in Blast.	Pig iron made, tons.
1835 ...	1,000,000	1858 618	3,456,064
1840 ...	1,396,400	1859 607	3,712,904
1847 433	1,999,608	1860 582	3,826,752
1852 497	2,701,000	1861 return not complete.	
1857 628	3,659,447		

During the last two or three years, the iron trade has been in a very depressed state, consequently the number of furnaces in blast has been diminished; but by the improvements made in the construction and in the working of iron furnaces, the production of iron from each has been largely increased. The first progress in the metallurgy of iron is the calcination of the ore, which is effected either in kilns or in the open air, in heaps; the object being to remove carbonic acid, water, sulphur, and all substances volatile at a red heat. The next process is that of smelting the ore. The only flux employed is limestone, and the fuel is either coal or coke, or a mixture of these. "In consequence there are four principal varieties of cast-iron, known respectively as Nos. 1, 2, 3, and 4, or *dark grey, bright grey, mottled, and white*; these terms although convenient, do not, however, indicate the intrinsic value of the iron thus denominated, as the variable qualities of ore, fuel, and limestone, may exercise such an influence on the resulting crude iron, as to render a low denomination of one manufacturer of greater commercial value than a higher denomination of other makers. The general characters of the four varieties are these: No. 1. Color, dark grey, in large rounded grains, obtained commonly near the commencement of the casting when the furnace is in good working order, and when an excess of carbon is present; in flowing it appears pasty, and throws out blue scintillations. It exhibits a surface where crystalline vegetations develop themselves rapidly in very fine branches; it congeals or fixes very slowly; its surface, when cold, is smooth, concave, and often charged with plumbeous; it has but a moderate tenacity, is tender under the file, and susceptible of a dull polish. When melted over again, it passes into No. 2, and forms the best castings. No. 2. Color, bright grey, of small grained structure, and interspersed only with small graphite laminae; possesses great tenacity, is easily filed, turned, and bored; may even be hammered, to a certain extent; does not readily crack from change of temperature. No. 3 is a mixture of white and grey iron. On strongly mottled iron, little stars and spots of grey iron are found interspersed in bright or flowery iron; weakly mottled iron exhibits white specks on a grey ground. In streaked iron, grey iron is found above and below, and bright iron in the middle, with strong demarcations. No. 4. White iron varies from tin white or greyish white; it is very brittle, cracking easily, even by change of temperature; it is extremely hard, sometimes even more so than hardened steel, so that it will resist the strongest file, and scratches glass easily. Fracture sometimes laminar, sometimes lamino-radiating, sometimes finely splintered, sometimes dense and conchoidal. As the fracture changes from laminar to conchoidal, the color likewise varies from white to greyish. Mean specific gravity 7.5. Expands less than grey iron when heated, cannot be welded, because it becomes pasty at the very lowest welding heat. When heated in the melting point, it does not suddenly pass into the fused state, like grey pig iron, the whole of the carbon is united to the iron; it is never used for casting, but always for conversion into malleable iron. The bright iron obtained from spathic iron ore contains the

largest proportion of carbon (5.8 per cent according to Kasten.) A white iron is always the result of the derangement in the working of the furnace, though it by no means follows that, when the iron is white, the furnace must necessarily be in a disordered state; the presence of manganese, for example, has a tendency to make white cast iron; but the quality may be excellent. The white iron resulting from derangement flows imperfectly, and darts out in casting, abundance of white scintillations; it fixes very quickly, and on cooling, exhibits on its surface irregular asperities, which make it extremely rough. It is exceedingly hard, though it is easily broken, the fracture being radiated and lamellar; the bar iron it affords is of inferior description. This kind of iron is always produced when the furnace is carrying a heavy burden of forge cinders, containing sulphur and phosphorous. Thus there are two distinct kinds of white cast-iron. 1st. That obtained from ores containing a large proportion of manganese, crystallizing in large plates; this variety is highly prized for making steel. 2nd. That resulting from a heavy mineral burden, or from a general derangement of the furnaces, or from the rapid chilling of fused grey iron crystallizing in small plates; both are hard and brittle, the first more so than the last. Cast-iron, which by slow cooling is grey, becomes white when it is cooled rapidly. On the other hand, when white iron is melted and allowed to cool very gradually, a portion of the carbon crystallizes out as graphite, and grey iron is produced. In some iron works, six varieties of pig iron are recognized, which may be classified thus: 1st. First foundry iron, large crystals. 2nd. Second foundry iron, large and small crystals mixed. 3rd. Dark grey, all small crystals. 4th. Bright grey. 5th. Mottled. 6th. White, verging on mottled."—*Hunt's Hand-book to the Industrial Department.*

#### Fall of a Railway Bridge at Harrogate.

A large stone bridge on the new line of railway, now in course of construction through Harrogate by the Great Northern Railway Co., has fallen without a moment's warning, causing serious, if not fatal, injuries to the workmen engaged upon and beneath it. The bridge consisted of three arches, the central arch having a span of 40 feet, whilst the one on either side is for foot passengers only. The bridge has been built to enable a land-owner to open a carriage road from High to Low Harrogate through his estate. The buttresses are of stone, and the arches of red brick, cemented together. Ballast and other trains had passed over the bridge without any indication of its giving way; and though, in the opinion of many persons, the crown of the arch looked too flat, there was no apprehension of an accident. The workmen had commenced removing the centres or supports beneath the arches, and at least one ballast train passed over the bridge without any appearance of giving way. Just as the last prop was being removed, an engine, tender, and train of empty wagons arrived at the bridge and proceeded to cross it. The engine and tender crossed in safety, when the whole arch, without the slightest warning, fell in, leaving two empty trucks standing upon the permanent rails. The cause of the accident is variously given. By some it is attributed to the crown of the arch being too flat; by others, to the removal of the supports before the cement was set hard; and by others, to the foundation of the buttresses being insufficient and insecure.—*London Artisan.*

#### Marquette Car Wheels.

Of all the hundreds of car wheels manufactured by Mr. Dorkersley, at Marquette, it is not known that one has ever yet been broken, and no fault has been found with either their quality or durability by the railroad company using them. If this is not sufficient recommendation, we should like to know what is. A large number of these wheels have been manufactured lately, and some fine specimens may be seen near the railroad bridge.—*Lake Superior Journal.*

#### Steam on Canals.

In the annual report of the Susquehanna and Tidewater Canal Company, submitted to the stockholders on the 14th ult., we find the subjoined letter from Mr. T. M. Abbott, Treasurer, to Mr. Wierman, Engineer and Superintendent of the Company's works:

OFFICE SUSQUEHANNA CANAL COMPANY,  
Baltimore, October 12, 1861.

T. T. WIERMAN, Esq.—Dear Sir: I have gathered from the books and accounts of Mr. McConkey, the managing owner of the canal steamer J. Edgar Thomson, information which enables me to present the following statement:

The hull was built at Peachbottom, by Mr. Geo. Geiger, and cost \$1200; length 85 feet; width, 16 feet; depth, 6 feet 6 inches; capacity, exclusive of the machinery, 85 t. ns. The engine was built in Baltimore by Mr. Charles Reeder, and cost \$1,600; its dimensions are as follows: cylinder diameter, 10 inches; length of stroke, 12 inches; upright boiler, 1½ inch tubes, 109 inches; propeller of 4 blades, diameter, 45 inches.

The steamer was put in service on the 22d of November, 1860, and up to October 1st, 1861, had been in service 211½ days, making 16½ round trips, and steaming 4,800 miles, at an average of 22.7 miles per day, including all delays.

The Thomson has generally a barge in tow, the Mary Lizzie, the same dimensions as the steamer, but having a freightage capacity of 112 tons.

The two boats in the seven months (or 16 trips) have transported downward freight amounting to 2,806 tons, averaging per trip 175 tons. This consisted of: Grain, 2,942,340 lbs.; slate, 8,400 lbs.; lumber, 656,250 lbs.; whiskey, 1,750 lbs.; flour, 177,768 lbs.; iron, 1,730,000 lbs.; bark, 95,800 lbs.; amounting to 2,806 net tons, or 5,612,308 lbs. The ascending trade of the two boats consisted of merchandise generally, and amounted to 856 tons, averaging 50½ tons per trip. The downward trade was distributed as follows:

To New York .....	350.75 tons.
To Wilmington, Del. ....	350.75 "
To Coop's Point, N. J. ....	175.375 "
To Baltimore. ....	350.75 "
To Philadelphia .....	1,578.375 "

Total ..... 2,806.00 tons

The engine consumed in the seven months of service 96 net tons of coal, bituminous and anthracite, averaging 40 pounds per mile, at an average cost of \$3.45 per ton.

#### Expenses for the seven months.

96 tons of coal, at \$3.45 .....	\$331 20
Wages, including board of one captain, one engineer, one steersman, and two deck hands, at \$156 per month, 7 mos. 1,092 00	
Interest on cost of 2 boats, engine, and furniture, (4,100.) ¾ of \$246 ..... 191 33	
Wear and tear of two boats, 2½% of \$240 ..... 186 66	
Wear and tear of engine, 1½% ¾ of \$100 ..... 77 77	
Repair of engine, ¾ of \$100 ..... 77 77	
Insurance of two boats and engine, \$4,100 —2½ per cent. ..... 102 50	
Incidental expenses ..... 5 00	

Total amount ..... \$2,064 23

From the foregoing data it will be found that the steamer and barge have transported 531,937 tons one mile, at a cost of 3½ mills per ton, or supposing that they had been engaged in a trade that offered no back loading, as is the case with nineteen-twentieths of the coal trade, then the whole expense would have to be distributed over the tonnage carried eastward to a market, which was 409,344 tons transported one mile at an expense of 5 mills per ton.

The above are the actual statistics of the steamer's operations, except in items of wear and tear, repairs and insurance—these I was compelled to estimate. Upon making the effort, it was found that the insurance of a canal steamer was such a novelty, that the insurance officers had no criteria

upon which they could make a tariff, and consequently sought safety in offering to insure the boat at marine rates, say 10 per cent!

The subject of inquiry next in interest to us, is a comparison of the relative expenses by steam and horse-power.

#### Expenses of Steamer and Barge for one year.

1,234 tons of coal, at \$8 45 .....	\$425 63
Nine months wages, at \$156 per month. 1,404 60	
Interest on \$4,100, at 6 per cent. ....	246 00
Wear and tear of boats, 2½% .....	240 00
Insurance on engine, 5 per cent. ....	80 00
Wear and tear of engine, 1½% .....	100 00
Repairs of engine .....	100 00
Insurance, 2 boats, \$2,400, at 1½ .....	36 00
Incidental expenses .....	18 00

Expenses one year's service ..... \$2,649 63

Monthly expenses, 2649 63 ..... \$294 40

Expenses of 3-horse team towing a single boat for one year, say 20 trips, (paying different prices for towage to Philadelphia or to Baltimore, but) averaging \$15 .....	300 00
Nine months wages and board of crew, at \$90 .....	810 00
Feed and keep of 3 mules one year .....	360 00
Interest on boat and team, (\$1,500) .....	90 00
Wear and tear of boat, 2½% .....	120 00
Wear and tear of teams, 2½% .....	15 00
Insurance on boat, \$1,200, at 1½ .....	18 00
Incidentals .....	10 00

Yearly expenses ..... \$1,728 00

Add for freightage capacity of steam-boat, say ¾ ..... 1,292 25

Monthly expenses, 3015 25 ..... \$335 03

Per month.	Per year.
By teams ..... \$335 03	\$3,015 25
By steam ..... 294 40	2,649 63

Difference in favor of steam. \$40 63 \$365 62

The statistics which I have given you are reliable, the estimates I submit to your better judgment and correction, hoping that your opportunities of ascertaining the views and experience of practical boatmen may serve to confirm or confute them.

The result has left a very clear impression on my mind, that, to a certain extent, there is an advantage in steam canal navigation.

The \$365 gain in the 1½ boats is not an inconsiderable item, and may we not reasonably hope that further experience in a yet novel enterprise may lead to economies in the uses of steam not now thought of, but which the competing energies of many minds engaged in the same field of labor, may in time produce? I am, truly yours,

THOS. M. ABBETT.

It is proper to add, that the small upright boiler was found to be a false economy, and that in the spring of 1862 a horizontal flue boiler was substituted, with advantage.

#### Manufactories in Montreal.

Among the establishments are two rolling mills for making nail-plate iron, with a capital of \$300,000. They employ 220 men and boys and turn out 3,600 tons of sheet iron annually. There are also several nail-making factories, giving employment to 120 persons, and producing every year about 3,000 tons of nails. Three establishments are engaged in the manufacture of saws, axles and other edge tools, and have earned a good reputation. Thirteen other foundries turn out large quantities of steam engines, patent safes and castings of all kinds. Besides these are numerous saw-mills and wood factories, shipyards, an extensive sugar refinery, two India rubber factories, a mill for making drugs and dyestuffs, a cotton mill, a woolen mill, a rope factory and several large grist mills.

**The Food Question—Peace with the United States a Necessary Condition for other Countries.**

However much England and France may suffer from the want of an abundant supply of raw cotton for their manufacturing establishments, it is very clear that they are, particularly England, quite as dependent upon this country for food, as they have been in times past for our other great staple. England is now compelled, with good seasons, to import annually no small proportion of the food her people consume. Every year adds to the amount, which increases in much greater ratio than her population. In wheat and flour alone, she took from us at least \$50,000,000 during the year ending July 1, 1861. For that just closed she has taken a much greater amount, as the last crop in that country was a very meagre one. Should the present be good, still, as there is no surplus in that country, the demand from this will probably continue very nearly in ratio to the past, till several good crops shall, with imports from abroad, have enabled her people to accumulate such reserves as shall, by relieving all apprehension, seriously react upon prices. Such is the conviction of parties in the trade there, so that the prospect of a fair crop will, for the present, exert but very little influence in weakening prices, or demand from that.

It is certain, but for the United States the prices of bread-stuffs in England the past year would have created a much greater commotion than has the lack of cotton. The demand for food is far more imperative than clothing, especially a single variety of clothing, and must be had in very nearly the same quantity, whatever may happen; whether a people be prosperous or the reverse, or whatever may be the condition of commerce or trade. The Southern States have, heretofore, been the source of supply of cotton. This is now, temporarily perhaps, cut off. Shall the evil be aggravated by shutting out food from vast multitudes who are either unemployed, or who are working upon short time. Shall two ills be courted instead of one? If one is so vast as to defy almost, treatment or solution, will not a still graver one added, be too much for the strength or foresight of government? We do not refer to other matters; but it is clear that a state of things that would sever the commercial relations between the two countries, would interfere with other relations, mutually injurious very probably, but none the less to be considered than the question directly at issue.

This question is not whether England might not obtain supplies of breadstuffs from other sources sufficient to keep her people from starving, but whether she can obtain them at rates that will place them within reach of the working classes. Prices are controlled by a deficit or excess, however slight this may be. It might be supposed that a deficit equal to one-twentieth of the whole amount wanted, would raise prices only in an equal degree. But the necessary result is, that they augment in vastly greater ratio, as it places the holders in position to exact their own terms. Now prices are kept down in England by the certainty that the United States can be always relied on to make good any deficiency that may be found to exist in that country. Apprehension is relieved, and though there may be a brisk demand, prices will never advance very far beyond cost of production, including, of course, interest on the amount of capital employed.

In our crops of breadstuffs, consequently, we have a good guarantee for continued peace. The abundant supply from this country, steadily

increasing, has unconsciously to nations of the Old World, rendered our own indispensable almost, to their comfort, and internal peace and quiet. We have during the past ten years been busily occupied in preparing this country to be the great grain mart for the world. We had abundant area, with soil and climate admirably adapted to the production of all the cereals at less cost than in any other country in the world. What we lacked was means of transportation, the best producing districts being 1,500 miles inland. The appropriate works have at length been constructed. Railroads traverse every portion of the interior, collecting at the great depots upon navigable water lines the bountiful products of the soil, which are borne to tide-water chiefly by means of one work—the Erie canal. There were transported over this route the past year, in grain and flour, what was equivalent to at least 70,000,000 bushels. The two great railroads of the State added 40,000,000 bushels more. The works which private and public enterprise have constructed in this State, are the most benevolent agents in ministering to the comfort and order of the Old World—agencies which are hardly more noticed than the operations of Nature, but which convert all these to the use and benefit of man.

Having labored so assiduously to promote the good of the people of the Old World, as well as ourselves, we do not think our good offices will be rudely thrown aside. Never was a grander achievement than our public works, which were made for mankind, instead of a comparatively isolated nation. Last year they saved both England and France all the horrors of a famine. They can continue to do so for all time. The people of those countries do not, of course, recognize their benefactors, but let them be cut off from these, and they will instantly learn their value and instantly demand the restoration of former relations, in tones that cannot be misunderstood or denied. We are now and are henceforth to be the granary of the world, and are almost as indispensable in the general economy, as food itself. The office we perform will not be lightly esteemed, nor will it long be rejected, as its benefits will be seen the moment they are withdrawn. Neither England nor France will long forego their customary amount of food for the sake of interfering in a matter which they will not appreciate—an interference which cannot result in a single compensating advantage for the thousand ills that must follow.—*Hallett's Financial Circular.*

**Freshet Damages in the Coal Region.**

The Philadelphia *Ledger* of the 27th ult., furnishes the following information as to the progress of repairs of the damages by the late freshet to the coal avenues:

"The share and loan holders of the Delaware Division Canal Company, as well as all who are interested in facilities for a full supply of coal at market, will be glad to learn that this section of navigation, extending from Bristol to Easton, and which was considerably injured by the late freshet so destructive of property in the Lehigh region, has been repaired, and that water will be let in its entire length on Saturday of this week. The Lehigh Navigation Company's works, having suffered much greater injury, will not be in working condition for some weeks yet; but the Lehigh Valley Railroad and some of its connections, extending to the heart of the anthracite coal fields, are now ready for business, and as the Delaware Division, two or three years ago, took the precaution of erecting *schesutes* at Easton, for the more ready reception of coal from the Lehigh Valley Railroad, the most of the business from that road will probably be emptied into the Delaware Divi-

sion Canal. From present indications, the coal trade will not be so seriously impaired as some have feared, and the Delaware Division Canal will not suffer so great a loss of tonnage as seemed almost inevitable, from the interruption of shipments on the Lehigh Canal."

**The Rogers Locomotive Works.**

The Rogers's Locomotive and Machine Works are very extensive. There are about four hundred hands employed at present, mostly on locomotives. A large and beautiful steam plow of the Fawkes class, is standing here all complete. It has two cylinders, eight by twelve inches; a corrugated driver roller, four and a half feet in diameter, and six feet broad in the face. It is capable of tearing through twenty acres of stiff land in one day. Beside it stands a large locomotive which was built for a railroad in South Carolina, but fortunately it was not sent away to Dixie. Two first class coal burning locomotives, with combustion chambers and copper-lined fire boxes, are now being constructed in Rogers's Works for Cuba; one wood burner for Dubuque, Iowa, and several orders for other places are in the course of being filled. A most favorable opportunity is afforded in this establishment for comparing the present with the past era in locomotive construction. Here on the outside of the shop is to be seen one of the old fashioned eight ton dumpy engines which were early used; and inside may be seen some elaborately-finished engines weighing from twenty-six to thirty five tons. American built engines have the preference in Cuba and in South America. Two locomotives furnished a few years since by this company for a railway in Chili, surpassed two English built engines in speed and power of hauling up steep gradients upon a fair trial. A splendid new engine for the same railroad was lately forwarded from this establishment.—*Scientific American.*

**St. Louis, Alton and Terre Haute Railroad.**

The Terre Haute and Alton and the Belleville and Illinoistown Railroad Corporations have been reorganized under the name of the St. Louis, Alton and Terre Haute Railroad Company. A Board of Directors has been appointed, consisting of Messrs. Bayard, Sage, Tilden, Butler, Richardson, Clark, Griswold, and several gentlemen resident on the line of the road. The new first mortgage bonds will be issued next week following, and consists of two classes, one called series A, bearing coupons for 7 per cent interest, due 1st January and 1st July, and one called series B, with coupons due 1st April and 1st October. The second mortgage bonds will also be divided into classes, and bear coupons due February and August and March and September.

**Railroad Earnings--Weekly.**

The receipts of the Grand Trunk Railway of Canada for the week ending June 28th, 1862, were:

17,168 passengers .....	\$22,388 66
Mails and sundries .....	3,413 68
Freight and live stock, 12,473 tons...	40,410 96
Total.....	\$66,213 30
Corresponding week, 1861 .....	61,001 44
Increase in 1862 .....	\$5,211 86

**Newburgh to be a Coal Depot.**

Through the efforts of Mr. Homer Ramsdell, Newburgh is to be placed in connection with the coal regions of Pennsylvania by the construction of a branch railroad from Hawley, the terminus of the Pennsylvania Railroad, to some one of the Delaware River stations of the Erie Railroad, about thirteen miles distant. A contract has recently been completed between the latter company and the Pennsylvania Coal Company, providing for the construction of the connecting road. The projected improvement is expected to be completed by June 1, 1863.

## AMERICAN RAILROAD BOND LIST.

(\*) signifies that the road is in the hands of receivers. (†) that the company is in default in its interest. S. F., Sinking Fund. "var," that the bonds fall due at different periods.

Description.	Amount.	Interest.	Due.	Price.	Description.	Amount.	Interest.	Due.	Price.	Description.	Amount.	Interest.	Due.	Price.
Alabama and Florida :					Chicago and Northwestern :	1,250,000	7	95		Galena and Chicago Union :	1,971,000	7	'62-'63	105
Mortgage	\$300,000	7	1867		1st Mortgage (preferred)					1st Mortgage Coupon	22,000	7	1882	106
Convert. (guar. by Dir.)	150,000	7	1863		1st Mortgage (general)	3,600,000	7	64½		1st Mortgage (Extended)	1,411,000	7	1875	100
Alabama and Miss. Rivers :					Bonds issued for coupons of do.	756,000	7			2d Mortgage (S. F.) Coupon				
State (Ala.) Loan	123,171	7			2d Mortgage	2,000,000	6	22½		*Great Western, Ill. :				
Mortgage	109,500	7			Appleton Extension Bonds	184,000	7			1st Mortgage Eastern Division	1,000,000	10		
Alabama and Tenn. Rivers :					Flagg Trust Bonds	245,000	8			" Western "	1,350,000	7		
1st Mortgage convertible	833,000	7	1872		Cincinn. Hamilton and Dayton :	394,000	7	1867	100	Hannibal and St. Joseph :				
2d Mortgage	225,705	8	1864		1st Mort. age	950,000	7	1880	100	Missouri State Loan (1st Lien)	3,000,000	6		47
Albany, Vt. and Canada :					2d Mortgage	158,000	7			Land Security	5,000,000	7	1881	26
1st Mortgage	500,000	7	1867		3d Mortgage	250,500	7			Mortgage (convertible)	1,360,000	7	1883	
Albany and West Stockbridge :					Tunnel Right	1,000,000	7			Mortgage (not convertible)	1,200,000	7	1889	
Albany City (S. F.)	1,000,000	6	'66-'76		Cleveland and Mahoning :	850,000	7	90		Harrisburg and Lancaster :				
Androscoggin and Kennebec :					1st Mortgage	469,000	7			New Dollar Bonds	661,000	6	1883	93
Million Dollar Loan	468,600	6	'61-'64	70	2d Mortgage	344,100	8			Hartford and New Haven :				
\$1,100,000 Loan	536,100	6	1890	79	Income	1,000,000	7			1st Mortgage	927,000	6	1873	99
Stock, convert. (Coupon)	710,000	6	'63-'66		Tunnel Right	850,000	7	90		Housatonic :				
Atlantic and Great Western :					Cleveland and Painesville and Ashtabula :	564,000	7	1861	99	1st Mortgage	170,000	6	1877	
Penn. Division, 1st Mortgage	2,500,000	7	1877	77	2d Mortgage	303,000	7	1862		Houston and Texas Central :				
Ohio " 1st Mortgage	4,000,000	7	1875	77	3d Mortgage	500,000	7	1874		State (1st Lien) Loan	210,000			
N. York " 1st Mortgage	1,250,000	7	1879	80	Special (Sunbury and Erie)	300,000	7	1880		Mortgage	125,000	7	1866	
Atlantic and St. Lawrence :					Convertible Script	500,000	7	'64-'90		Hudson River :				
Dollar Bonds (Coupon)	988,000	6	1866		1st Mortgage (Main Line)	800,000	7	1860	100	1st Mortgage	4,000,000	7	'69-'70	110
Sterling Bonds (Coupon)	484,000	6	1878	97	2d Mort. (M. L.) or 1st Extension	1,188,000	7	1873	91	2d Mortgage	2,000,000	7	1860	103
City of Portland Loan (Coup.)	1,500,000	6	'68-'70		3d Mort. (M. L.) or 2d Extension	1,165,000	7	1875	82	3d Mortgage	1,840,000	7	1875	94
Baltimore and Ohio :					4th Mort. (M. L.) or 3d Extension	1,154,000	7			Convertible	1,002,000	7	1867	89
Maryland Sterling	3,000,000	5	1838		Cleveland and Pittsburg :	500,000	7			Illinois Central :				
Mortgage Coupon	2,500,000	6	1885	91	1st Mortgage (Main Line)	299,000	7	1887	65	Optional Right bonds	38,000	7	1868	64
" "	700,000	6	1880	93	2d Mort.	219,000	7	1872	65	Construction	10,798,500	7	1875	95
" "	1,125,500	6	1875	94	3d Mort.	221,000	7	1862		Construction	4,115,000	6	1875	96
" "	1,000,000	6	1867	93	Clev., Columbus and Cin. :	104,400	7	1863	75	Eight per cent. bonds	326,000	8	1865	
Balt. City Loan	5,000,000	6	1890		1st Mortgage, Coupon	174,000	7	1864		Indiana Central :				
Bellefontaine and Ind. (1 Jan. '60) :					Cleveland and Toledo :	175,000	7	1862		1st Mortgage (convertible)	600,000	7	1866	
1st Mortgage convertible	701,000	7	1866	55	Junction 1st Mortgage 1st Div.	220,000	7	1862		2d Mortgage	284,500	10		
2d Mortgage	167,000	7	1870		Junction 1st Mortgage 2d Div.	1,188,000	7	1873		Income	281,600	10	75	
Belvidere Delaware :					Junction 2d Mortgage	521,000	7	1863	75	Indianapolis and Cincinnati :				
1st Mort. (guar. C. and A.)	1,000,000	6	1877		Tol. Nor. and Clev. 1st Mort.	233,200	7	1863	75	1st Mortgage	500,000	7	1866	85
2d Mortgage (do.)	500,000	6	1885		Tol. Nor. and Clev. 2d Mort.	104,400	7	1863	75	2d Mortgage	400,000	7	1866	85
3d Mortgage (do.)	581,000	6	1877		Junction Income	174,000	7	1864		Real Estate Mortgage	200,000	7	1868	68
Black River and Utica :					C. and T. Income Mortgage	175,000	7	1864		1st Mortgage	650,500	7	1870	
1st Mortgage	370,000	7	1869		C. and T. Income (convertible)	176,000	7	1864		2d Mortgage	314,000	7		
Boston Concord and Montreal :					C. and T. Dividend (convert.)	176,000	7	1864		Jeffersonville :				
1st Mortgage	200,000	6	1870		C. and T. Income (convertible)	176,000	7	1864		1st Mortgage	272,000	7	1861	75
2d Mortgage	300,000	7	1870	91	C. and T. Income (convertible)	176,000	7	1864		2d Mortgage	392,000	7	1873	70
3d Mortgage Coupons	150,000	6			Columbus and Xenia :	115,900	var.	93		*Kennebec and Portland :				
4th Mortgage Coupons	200,000	7			Dividend (due 1860, '61, '62, '66)	250,000	6	1878		1st Mortgage (City and Town)	800,000	6	1870	
Sinking Fund	200,000	6			Connecticut River :	800,000	---			2d Mortgage	230,000	6	1861	
Boston and Lowell :					Mortgage	1,150,000	8	var.		3d Mortgage	250,000	6	1862	
Mortgage	440,000	6	1873		Connecticut and Passump. Rivers :	800,000	---			Kentucky Centr. (Cov. and Lex.) :				
Buffalo, New York and Erie :					1st Mortgage	1,499,000	7	1875	107½	1st Mortgage	160,000	6		
1st Mortgage coupon	2,000,000	7	1877	92	2d Mortgage	2,516,500	7	1881	104	2d Mortgage	260,000	7		
2d Mortgage coupon	380,000	7			3d Mortgage	14,101	var.	88		3d Mortgage	600,000	7		
Buffalo and State Line :					4th Mortgage (E. Extension)	1,499,000	7	1875	107½	Guaranteed by Covington	200,000	6		
1st Mortgage	500,000	7	1866	106	2d Mortgage	1,499,000	7	1881	104	Cincinnati (exchanged)	100,000	6		
Income \$ in '50, ½ in '62	200,000	7	var.		Income (due 1862, '63 and '67)	1,499,000	7	1875	107½	Keokuk, Ft. D. Moines and Minn.:				
Unsecured	200,000	7	1864		1st Mortgage	900,000	7	1871	107½	City of Keokuk, 20 years	400,000	81		
Special Erie and North-East	149,000	7			2d Mortgage	1,499,000	7	1881	104	City of Keokuk, (special tax)	150,000	101		
Burlington and Missouri :					3d Mortgage	1,499,000	7	1883	104	Lee Co. 20 years	150,000	8		
1st Mort. on 1st Division	590,000	---			4th Mortgage	1,499,000	7	1871	104	Keokuk, Mt. Pleasant and Muscat.:				
Cairo and Fulton (Mo.) :					1st Mortgage	300,000	7	50		Lee County	150,000	8		
State (Mo.) Loan	650,000	6	'78-'79		2d Mortgage	344,000	7	40		City of Keokuk	200,000	8		
Camden and Amboy :					3d Mortgage	1,499,000	7	1873		Henry and Louis Company's	50,000	8		
Mortgage	367,000	6	1864	100	4th Mortgage	1,499,000	7	1863		Lehigh Valley :				
Mort. (chgd from Sterl')	888,000	5	1864	100	1st Mortgage	500,000	7	80		1st Mortgage	1,500,000	6	1870	103
Mortgage	800,000	6	1849		2d Mortgage	65,000	7			2d Mortgage	903,000	7		89
Mortgage	1,700,000	6	1875	84	3d Mortgage	170,000	7			3d Mortgage	1,000,000	7		
Sterling (\$210,000)	1,008,000	5	1864	84	4th Mortgage (G. W. R. R.)	1,499,000	7	1863		1st Land Grant (Western Div.)	4,000,000	7		21
Sterling (\$225,000)	1,030,000	6	1864		New Construction	500,000	8			2d Land Grant (Western Div.)	353,600	7		
New Loan (iss'd \$337,000)	2,500,000	6	1887		Dubuque and Pacific :	800,000	---			3d Mortgage (whole road)	1,700,000	7		
Catawissa :					1st Mort. and Milwaukee :	1,499,000	7	1875		Farm Mortgage	1,087,700	7		
1st Mortgage	1,500,000	7	1865	32	2d Mortgage	1,000,000	8	1866		Unsecured Bonds	1,785,000	7		
Cayuga and Susquehanna :					3d Mortgage	750,000	10	1863		Lexington and Frankfort :				
1st Mortgage	300,000	7	1865		4th Mortgage (G. W. R. R.)	500,000	8			Mortgage, due 1864, '69 and '74.	130,000	6		
Central of Georgia :					New Construction	800,000	---			Little Miami :				
Mortgage	86,067	7	1863		Erie and North-East :	344,000	7			Mortgage (Coupon)	1,300,000	6	1883	89
Central of New Jersey :					1st Mort. and Hamilton :	1,499,000	7	1863		Long Island :				
1st Mortgage	1,400,000	7	'65-'70	100	Eaton and Hamilton :	757,734	7	var.		1st Mortgage	500,000	6	1870	85
2d Mortgage	600,000	7	1875	100	1st Mort. and Buff. and St. L.	142,000	7			Extension Bonds	175,000	7	1890	82
Central Ohio :					1st Mort. and Milwaukee :	1,499,000	7	1863		Long Dock Co.:				
1st Mortgage W. Div.	450,000	7	1861	81	2d Mort. and Milwaukee :	1,499,000	7	1863		Mortgage Bonds	500,000	7	1882	
1st Mortgage E. Div.	800,000	7	1864	80	3d Mort. and Milwaukee :	1,499,000	7	1864		Mortgages on Land	473,809	7		
2d Mortgage	600,000	7	1865	64	1st M. (State) \$75,000 a y'r after '64	500,000	5	var.		Louisville and Frankfort :				
3d Mortgage (S. F.)	950,000	7	1885		2d Mort. and Milwaukee :	1,499,000	7	1863		Louisville Loan	174,000			
4th Mortgage (S. F.)	1,365,800	7	1876		3d Mort. and Milwaukee :	1,499,000	7	1863		1st Mort. and Louisville :	248,000			

## AMERICAN RAILROAD BOND LIST.

<sup>\*</sup>) signifies that the road is in the hands of receivers. (<sup>†</sup>) that the company is in default in its interest. "S. F." Sinking Fund. "var." that the bonds fall due at different periods.

Description.	Amount	Interest	Due.	Price	Description.	Amount	Interest	Due.	Price	Description.	Amount	Interest	Due.	Price
Memphis and Ohio :					N. York, Providence and Boston :	\$331,000	6			Racine and Mississippi :	\$680,000	8		
State [Tenn.] Loan.	\$1,340,000	6			1st Mortgage.	-----				1st Mortgage (Eastern Division)	-----			
Michigan Central :					North Carolina :	2,000,000	6			1st Mortgage (West'rn Division)	757,000	8		
1st Mortgage Sterling	467,489	6	1872	98	State Loan.	1,000,000	6			Raleigh and Gaston :	100,000	--	1862	
1st Mortgage \$1g (convertible)	500,000	8	1869	84	State Loan.	-----				Coupon.	-----			
1st Mortgage (convert.) Dollar	2,598,000	8	1869	105	North-Eastern (S. C.) :	700,000				Richmond and Danville :	-----			
1st Mortgage (S. F.), convertible	4,434,000	8	1882	106	1st Mortgage.	224,500				State (Va.) Loan (3 years).	600,000	6	var.	
Mich. Southern and N'n Indiana :					2d Mortgage.	35,910				Guaranteed by State	200,000	7	1875	
Michigan Southern, 1st.	850,000	7	1860	100	Real Estate.	150,000	6	1866		Mortgage (Coupon).	250,000	7	1869	
Northern Indiana, 1st.	940,000	7	1861	103	Balt. and Susq. R. R. (Coupons)	1,500,000	6			Richmond, Fred. and Potomac:	-----			
Erie and Kalamazoo	300,000	7	1862		Md. State Loan (B. and Susq.)	175,000	6	1870		Sterling (\$267,000).	324,000	6	1860	
Michigan Southern, conv.	44,000	7	1863	85	York and Cumberland 1st Mort.	25,000	6	1871		Richmond and Petersburg:	159,000	--	1875	
Northern Indiana, conv.	100,000	7	1863	81	Y. and C. guar. by Balt. 3d Mort.	500,000	6	1877		Coupon.	-----			
Jackson Branch	128,000	7	1863	88	N. C. Contract, 2d Mort.	300,000	6	1876		* Rutland and Burlington:	-----			
Goshen Air Line.	7,116,000	7	1863	101	Construction, 2d Mort.	2,500,000	6	1885	82	1st Mortgage.	1,800,000	7	1863	
Detroit and Toledo.	684,000	7	1876	76	Northern (Ogdensburg):	1,494,000	71	1859	70	2d Mortgage.	937,500	7	1863	
1st General Mortgage (S. F.).	8,030,000	7	1885	100	1st Mortgage.	3,077,000	71	1861	4 <sup>1</sup>	2d Mortgage.	435,050	7	1863	
2d General Mortgage.	2,572,000	7	1877	83	2d Mortgage.	-----				Sacramento Valley:	-----			
*Milwaukee and Beloit :					1st Mortgage.	-----				1st Mortgage.	400,000	10	1875	
1st Mortgage.	630,000	8			2d Mortgage.	-----				2d Mortgage.	329,000	10	1881	
Milwaukee and Chicago :					North Missouri :	4,350,000	6			Sandusky, Dayton and Cincinnati:	-----			
1st Mortgage.	400,000	8			State Loan (30 years).	2,500,000	6	1875	82	Mortgage.	125,000	10	1856	
2d Mortgage	200,000	7			Mortgage.	380,000	10	1853	98	Mortgage.	997,000	7	1866	
*Milwaukee and Horicon :					Chatel Mortgage.	-----				Sandusky, Manfield and N'wark:	1,000,000	7	1875	
1st Mortgage.	42,000	8			Northern (N. H.):	219,500		var.		1st Mortgage.	1,290,000	7	1866	
2d Mortgage.	600,000	8			Mortgage (due 1860, '64 and '74).	4,637,920				Staroga and Whitehall:	-----			
Milwaukee and Prairie du Chien.					Norwich and Worcester:	400,000	6	1877		1st Mortgage.	250,000	71	1858	
1st Mortgage (Coupon).	2,526,000	7	1891	100	Mass. State Loan.	205,800	6	1860		1st Mortgage (R. and W. Br.)	100,000	71	1856	
1st Preferred stock.	1,060,000				Construction.	-----				Seaboard and Roanoke:	-----			
2d Preferred stock.	1,020,000				Panama:	2,193,500	7	1858		1st Mortgage.	300,000	7	1860	
Mississippi Central :					1st Mortgage.	316,995				3d Mortgage.	75,000	7	1870	
1st Mortgage.	1,007,383	7			2d Mortgage.	4,637,920	7	1858	17	Dividend Bonds.	60,000	7	1856	
Mississippi Central and Tenn.:	629,000	6			Income.	3,591,185				Sterling.	2,000,000	5	1866	
Mississippi and Missouri :					Orange and Alexandria:	400,000	6	1866		Southern Mississippi:	-----			
1st Mortgage (convertible).	1,000,000	7			1st Mortgage.	1,250,000	7	1866	100	1st Mortgage.	500,000			
2d Mortgage (S. F.).	400,000	8			2d Mortgage or 1st Extension.	1,200,000	6	1875		Springfield, Mt. Vern. and Pittsb.	-----			
Oakaloosa Division.	1,425,000	7			2d Extension.	600,000	8	1873		1st Mortgage.	500,000			
Land Grant.	7,000,000	7			Pacific (Mo.):	7,000,000	6			2d Mortgage.	450,000			
Mississippi and Tennessee :					State (Mo.) Loan.	4,000,000	6			* Steubenv. and Ind. (P. C. and C.):	-----			
Tennessee State Loan.	98,000	6	1885		State (S. W. Branch).	2,800,000	6			1st Mortgage.	1,500,000	7	1870	
Mississippi State Loan.	202,799	6			Construction.	4,500,000	6			2d Mortgage.	900,000	7	1866	
1st Mortgage.	171,000	7	1876		Panama:	1,250,000	7	1866	100	St. Louis, Alton and Chicago:	-----			
Mobile and Ohio :					1st Mortgage Sterling.	1,150,000	7	1872		1st Mortgage.	2,000,000	71	1875	
City (Mobile) Tax Loan.	400,000	6			2d Mortgage Sterling.	-----				2d Mortgage.	1,535,000	71	1875	
Tennessee State Loan.	674,860	6			Pennsylvania :	4,905,000	6	1888	102 <sup>1</sup>	St. Louis, Alton and Chicago:	1,400,000	7	1876	
Alabama State Loan.	389,410	6			1st Mortgage (convertible).	2,319,000	6	1875	97	1st Mortgage.	1,621,000	71	1875	
Income.	1,508,070	8	61-'67		2d Mortgage.	1,957,440	6	1875		2d Mortgage.	2,000,000	71	1875	
Sterling.	878,035	6	1883		State Works Bonds.	7,200,000	5		89	3d Mortgage (Income).	1,000,000	10 <sup>1</sup>		
Mississippi State Loan.	300,970	6			Pennsylvania Coal Company:	600,000	7	1861		St. Louis and Iron Mountain:	-----			
Montgomery and West Point :					1st Mortgage.	-----				State (Mo.) Aid.	3,501,000			
Alabama State Loan.	122,622				Penobscot and Kennebec:	780,000	6	'74-'75		St. Louis City Subscription.	500,000			
Mortgage (due 1860, '63 and '65).	350,000	6	var.		Bangor City 1st Mortg. (Coupon)	268,800	6	1876		St. Louis County Subscription.	1,000,000			
Mortgage.	450,000	8	1866		2d Mortgage (Coupon).	156,600	6	1871		Sunbury and Erie:	-----			
Morris Canal and Banking Co. :					3d Mortgage (Coupon).	-----				1st Mort. (Sunbury to W'mpt').	1,000,000	7	1877	91
Mortgage Bonds.	665,250	6	1876	99	Poor's.	378,000	6	1872		Mortgage (half to State).	7,000,000	5	'75-'78	
Preferred Stock.	1,175,000	10			Peoria and Oquawka:	500,000	8	1862		Syracuse, Binghamton and N. Y.:	-----			
Muscogee :					1st Mortg. (W. Ext.) convertible.	500,000	8	1862		1st Mortgage Coupon.	1,400,000	7	1876	
1st Mortgage.	240,000	7			1st Mortg. (E. Ext.) convertible.	500,000	8	1873		Terre Haute, Alton and St. Louis:	-----			
Vaughnville and Chattanooga :					Petersburg:	103,000	7	var.		1st Mortgage (convertible).	1,000,000	71	'62-'72	106 <sup>1</sup>
Mortgage (State endorsed).	1,500,000				Mortgage (due 1863 to 1872).	100,000	7			2d Mortgage (convertible).	2,000,000	71	'68-'70	82
Chat and Clev. Subs. (endorse.)	231,000				Peterburg and Lynchb'g (S. Side):	800,000	7			Tennessee and Alabama:	-----			
*New Albany and Salem :					State (Va.) Loan (S. F.).	365,000	6	var.		Terre Haute, Alton and St. Louis:	814,000			
Crawfordsville.	175,000	7			1st Mortgage (1859-'70-'75).	378,000	6	var.		1st Mortgage (convertible).	230,000	7	1866	
1st Mortgage.	500,000	10			3d Mortgage (1862-'70-'72).	175,000	6	var.		2d Mortgage (convertible).	900,000	7	1865	
1st Mortgage.	2,235,000	6			Special Mortgage (1865-'68).	133,500	8	var.		Terre Haute and Richmond:	-----			
N. Hav., N. Lond. and Ston'gton :					Last Mortgage (1861 to 1869).	274,800				1st Mortgage (convertible).	1,535,000	71	1866	
Mortgage.	450,000	7			Philha., German'tn and Norrist'n:	100,000				2d Mortgage.	1,000,000	10 <sup>1</sup>		
Mortgage.	200,000	6			Consolidated Loan.	-----				3d Mortgage (Income).	1,000,000	10 <sup>1</sup>		
Extension.	100,000	10			Loan of 1842.	-----				Warren (N. J.):	-----			
New Haven and Northampton :					Philadelphia and Reading:	408,000	5	1867		1st Mortgage.	568,500	7	1875	
1st Mortgage.	500,000	---	1869		Bonds of 1836, (unconvertible).	192,000	5	1880	99	2d Mortgage.	1,136,000	7	1867	14
New Jersey :					" 1848,	3,103,600	6	1870	94	Virginia Central:	-----			
Company's (various).	711,000	---	var.	102 <sup>2</sup>	" 1849,	436,000	6	1871		Mort., guaranteed by State of Va.	100,000	6	1880	85
New London Northern:					" 1861,	1,548,300	6	1880	99	Mortgage (coupons).	198,000	6	1872	82
1st Mortgage.	85,000	7			" 1843,	863,000	6	1880	97	Mortgage, (coupons).	926,000	6	1884	
N. Orl'ns, Jackson and Gt. North.:					" 1844,	124,000	6	1880	99	Virginia and Tennessee:	-----			
State (Miss.) Loan.	255,000	5	63-'48		" 1844, (convertible).	83,000	6	1880	102	State (Va.) Loan.	1,000,000	6	1887	
1st Mortgage Coupon.	2,665,000	8	1886		" 1848,	3,586,500	6	1886	86	1st Mortgage.	500,000	6	1872	86
N. Orl'ns, Opelous and Gt. West.:					" 1849,	1,475,000	7	1886	89 <sup>1</sup>	2d Mortgage.	1,000,000	6	1884	81
Louisiana State Loan.	641,000	6			" 1857,	692,200				Salt Works Br. Works, Mort. due '58-'61	203,000	6	var.	
New Orleans City Subscription	1,500,000	5			" 1858,	1,551,800				Warren (N. J.):	-----			
1st Mortgage (S. F.).	566,000	8	1889		Bonds and Mortg's—real estate.	-----				1st Mortgage.	568,500	7	1875	
New York Central :					Preferred Stock.	-----				2d Mortgage.	1,136,000	7	1867	14
Premium (S. F.) Bonds.	7,552,000	6	1883	101	Phila., Wilmington and Baltimore:	2,300,000	6	1884	99 <sup>1</sup>	Virginia Central:	-----			
Funding (S. F.) Bonds.	1,558,000	7	1876	101	Mortgage Loan.	119,000	6	1863		Mort., guaranteed by State of Va.	100,000	6	1880	85
Stock Exchange (S. F.) Bonds.	680,000	6	1883											

## RAILROAD SHARE LIST, including Mileage, Rolling Stock, etc., etc.

An asterisk (\*) occurring in the column headed "Rolling Stock," signifies that the cost is included in that of "Railroad and Appurtenances." A dash (-) signifies "nil."

Running dots (----) signify "not ascertained." Land-Grant Railroads are in "italics."

Years ending.	Railroad.										Equipment										Abstract of Balance Sheet.										Earnings.			
	Main Line.		Lateral and Branch Lines.		2nd Track and Sidings.		Road in progress or projected.		Cars.		Companies.		Property and Assets.		Liabilities.		Total, incl. all other assets and liabilities.		Road operated, incl. road leased, etc.		Mileage run by locomotives with trains.		Gross.		Net.		Dividends.		Price of shares.					
	M.	M.	M.	M.	M.	M.	No.	No.	No.	No.	M.	M.	Engines.	Passenger.	Freight, etc.	Railroad and Appurtenances.	Rolling Stock.	Invested in foreign works.	Share Capital paid in.	Bonded and Mortgage Debt.	Floating Debt	M.	M.	M.	M.	p. c.	p. c.	p. c.	p. c.					
30 Jun. '60	65.0	—	50.6	—	19	—	—	—	—	—	Alabama.	1,451,936	*	*	*	877,653	503,500	105,255	1,515,704	54.0	101,102	37,866	—	—	—	—	—	—	—	—	—			
28 Feb. '59	30.3	—	58.1	2	2	19	—	—	—	—	Alabama and Mississippi	461,505	30,991	—	—	335,010	109,500	21,632	518,965	30.3	55,791	31,552	—	—	—	—	—	—	—	—	—			
31 May '60	109.6	—	57.8	11	9	102	—	—	—	—	A.A. and Tennessee Rivers	2,261,927	184,906	—	—	1,067,006	777,777	240,485	2,176,0.3	109.6	207,626	111,232	—	—	—	—	—	—	—	—	—	—		
30 Jun. '59	57.0	—	171.3	—	—	—	—	—	—	—	Mobile and Girard	1,500,000	—	—	—	600,431	—	—	600,431	57.0	236,791	76,773	21,006	—	—	—	—	—	—	—	—	—		
1 Apr. '61	—	—	67.2	1	2	10	—	—	—	—	Mobile and Great Northern	590,216	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
1 May. '61	469.3	13.5	49.4	40	28	502	—	—	—	—	Mobile and Ohio	12,000,000	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
29 Feb. '60	88.5	28.4	—	—	23	14	283	—	—	—	Montgomery and West Point	1,838,718	427,265	100,000	1,419,769	922,622	23,579	2,582,503	116.9	1,402,858	695,370	505,156	200,269	6	—	—	—	—	—	—	—	—		
1 May. '61	—	—	208.5	—	—	—	—	—	—	—	North East and South West	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
—	—	—	301.4	—	—	—	—	—	—	—	Cairo and Fulton	—	—	—	—	351,524	446,000	10,725	811,949	—	—	—	—	—	—	—	—	—	—	—	—			
30 Nov. '58	38.5	—	107.5	—	—	—	—	—	—	—	Memphis and Little Rock	553,877	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
—	—	—	—	—	—	—	—	—	—	—	CALIFORNIA.	1,493,850	*	—	—	793,860	700,000	—	1,493,850	22.5	230,251	104,894	—	—	—	—	—	—	—	—	—	—		
30 Dec. '60	22.5	—	—	—	—	—	—	—	—	—	Sacramento Valley	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
—	—	—	—	—	—	—	—	—	—	—	CONNECTICUT.	343,103	59,373	—	—	307,010	96,500	—	43,739,922	22.4	45,543	77,028	34,866	16	—	—	—	—	—	—	—	—	—	—
31 July '60	23.8	—	2.8	4	4	43	Danbury and Norwalk	—	—	—	—	3,903,456	302,511	—	—	1,936,739	1,810,500	319,444	252,906	359,147	149,477	—	—	—	—	—	—	—	—	—	—	—		
31 Jun. '61	122.4	15.0	75.1	16	20	241	Hartford, Provid. and Fishkill	3,207,896	254,000	102,888	—	2,350,000	927,000	13,356	3,057	73.0	323,491	712,870	384,186	14	142	—	—	—	—	—	—	—	—	—	—			
31 Aug. '61	61.4	1.6	64.6	18	21	302	Hartford and New Haven	2,439,775	*	6,247	—	2,000,000	197,000	52,461	2,585,534	120.0	213,253	319,106	77,038	—	—	—	—	—	—	—	—	—	—	—				
31 Dec. '60	74.0	—	—	—	—	—	—	—	—	—	Naugatuck	1,381,800	*	—	—	1,031,800	289,750	21,408	1,34,958	57.0	137,813	263,209	94,591	8	—	—	—	—	—	—	—	—	—	—
31 Dec. '60	57.0	—	1.3	—	—	—	—	—	—	—	1,454,040	*	—	—	—	758,558	750,000	156,429	1,04,967	62.0	127,390	135,072	—	—	—	—	—	—	—	—	—	—		
31 Dec. '60	62.0	—	2.6	—	—	—	—	—	—	—	New Haven, N. London and Ston.	1,400,000	*	—	—	92,2500	500,000	—	1,422,500	55.2	120,671	149,317	149,317	5	—	—	—	—	—	—	—	—	—	—
31 Dec. '60	46.0	8.8	4.9	—	—	—	—	—	—	—	New Haven and Northampton	686,074	*	—	—	602,138	61,300	24,901	68,562	66.0	145,762	116,897	102,722	2	—	—	—	—	—	—	—	—	—	—
31 Dec. '61	66.0	—	5.2	7	7	111	New London Northern	—	—	—	—	4,643,49	710,403	—	—	3,000,000	1,890,000	—	5,626,549	117.4	438,5.0	808,060	301,979	—	—	—	—	—	—	—	—	—	—	—
31 Mar. '62	61.3	1.0	63.8	32	74	368	New York and New Haven	2,613,694	—	200,000	—	—	2,122,500	809,300	62,477	—	—	64.4	—	—	288,512	108,628	—	43	—	—	—	—	—	—	—	—	—	—
30 Nov. '61	59.4	7.0	8.5	—	—	—	—	—	—	—	Norwich and Worcester	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
—	—	—	—	—	—	—	—	—	—	—	DELAWARE.	1,552,257	—	—	—	406,132	870,000	271,577	1,607,684	84.3	136,631	138,970	41,460	—	—	—	—	—	—	—	—	—	—	—
31 Oct. '61	84.3	—	10.7	—	—	—	—	—	—	—	Delaware	—	—	—	—	43,525	744,520	5,024	749,544	5.0	—	22,308	7,915	6½	—	—	—	—	—	—	—	—	—	
31 Oct. '61	16.2	—	—	—	—	—	—	—	—	—	Newcastle and Frenchtown	704,860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
—	—	—	—	—	—	—	—	—	—	—	FLORIDA.	532,791	30,586	—	—	191,485	195,000	75,894	619,112	32.0	—	7,857	5,635	—	—	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	Florida	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
30 Apr. '60	32.0	—	3.0	13.0	3	1	6	Florida and Alabama	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	Florida, Atlantic and Gulf Central	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	Pensacola and Georgia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	GEORGIA.	1,192,389	*	—	—	1,250,000	126,000	—	1,597,385	86.7	418,036	265,827	8	125	—	—	—	—	—	—	—	—	—	—
30 Jun. '60	86.7	—	—	—	—	—	—	—	—	—	Atlanta and West Point	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
31 Dec. '60	92.6	—	8.7	70.9	—	—	—	—	—	—	Atlanta and Gulf—M. Trunk	1,032,200	*	—	—	733,700	129,500	—	53.0	—	—	168,988	95,612	—	—	—	—	—	—	—	—	—	—	—
31 Dec. '60	53.0	—	—	—	—	—	—	—	—	—	Augusta and Savannah	755,000	*	—	—	151,887	—	—	91.0	—	—	—	—	—	—	—	—	—	—	—	—	—		
30 Apr. '60	43.5	—	23.7	—	—	—	—	—	—	—	Brunswick and Florida	4,366,800	*	—	—	4,366,800	—	—	6,590,173</td															

**RAILROAD SHARE LIST, including Mileage, Rolling Stock, etc., etc.**

An asterisk (\*) occurring in the column headed "Rolling-Stock," signifies that the cost is included in that of "Railroad and Appurtenances." A dash (-) signifies "nil." Running dots (....) signify "not ascertained." Land-Grant Railroads are in "*italics*."

## RAILROAD SHARE LIST, including Mileage, Rolling Stock, etc., etc.

An asterisk (\*) occurring in the column headed "Rolling-Stock," signifies that the cost is included in that of "Railroad and Appurtenances." A dash (-) signifies "nil." Running dots (----) signify "not ascertained." Land-Grant Railroads are in "italics."

Years ending.	Railroad.										Abstract of Balance Sheet.										Earnings.						
	Main Line.		Lateral and Branch Lines.		2nd Track and Sidings.		Road in progress or projected.		Equipment.		Cars.		Property and Assets.				Liabilities.				Mileage run by locomotives with trains.		Dividends.				
	M.	M.	M.	M.	M.	No.	No.	No.	No.	No.		Railroad and Appurtenances.	Invested in foreign works.	Share Capital paid in.	Bonded and Mortgage Debt.	Floating Debt.	Total, incl. all other assets and liabilities.	Road operated, incl. road leased, etc.	Gross.	Net.	p. c.	p. c.					
Companies.																											
30 Sep. '60	32.9	—	—	140.0	—	5	12	53	Albany and Susquehanna	548,221	—	507,957	—	46,139	554,096	—	ope. r. by Re. ns. & Sarat.	—	—	—	—	—	—	—			
30 Sep. '60	38.8	—	3.3	—	—	5	12	53	Albany and Vermont	1,557,502	136,038	439,005	1,575,099	50,000	—	2,389,559	—	ope. r. by W. estern.	6	100	—	—	—	—	—		
30 Sep. '60	34.9	—	44.0	—	—	4	6	39	Albany and West Stockbridge	2,389,559	—	1,000,000	1,389,559	—	7,121	1,574,992	34.9	40,670	72,458	36,609	—	—	—	—			
30 Sep. '60	14.8	—	2.6	73.6	4	6	39	Black River and Utica	1,156,269	81,445	822,371	745,500	7,121	470,000	14.8	22,712	34,310	19,886	—	—	—	—	—	—			
30 Sep. '60	14.5	—	1.6	—	—	—	—	—	Biosburg and Corning	496,661	—	250,000	220,000	—	42,102	575,852	14.5	325,499	68,676	28,168	34	—	—	—	—		
30 Sep. '60	14.5	—	7.0	—	—	28	—	—	Brooklyn Central and Jamaica	546,372	40,247	448,750	85,000	—	130,000	1,130,000	24.7	2,904,887	520,855	110,896	8	—	—	—	—		
30 Sep. '60	24.7	0.9	23.4	5.5	—	158	—	—	Brooklyn City	926,356	338,870	1,000,000	208,817	—	212,072	3,683,579	176.0	483,412	593,845	187,704	—	—	—	—	—		
30 Sep. '60	142.0	—	14.9	18.5	28	32	402	—	Buffalo, New York and Erie	3,165,147	*	208,817	850,000	2,412,534	27,546	3,027,496	87.8	317,850	911,020	498,047	10	130	—	—	—		
30 Sep. '60	68.3	—	14.0	—	28	34	327	—	Buffalo and State Line	2,267,158	521,126	1,950,950	1,049,000	—	500,000	75,550	179,050	39.6	61,430	57,649	10,427	—	—	—	—	—	
30 Sep. '60	34.6	—	38.1	—	—	—	—	—	Cayuga and Susquehanna	400,000	—	343,500	300,000	70,000	—	450,000	ope. r. by Erie.	24,000	6	—	—	—	—	—	—		
30 Sep. '60	17.4	—	2.1	—	—	—	—	—	Chemung	500,000	—	500,000	—	—	—	500,000	ope. r. by Erie.	30,000	6	—	—	—	—	—	—		
30 Sep. '60	46.8	—	2.9	—	10	8	83	E'mira, Jefferson & Canand.	175,000	—	175,000	—	—	—	[175,000]	17.3	46,981	—	6	—	—	—	—	—			
30 Sep. '60	17.3	—	3.0	—	—	—	—	—	Hudson and Boston (Western)	10,618,073	1,182,372	3,758,466	9,107,000	182,106	—	150.0	967,065	2,047,148	778,121	46	—	—	—	—	—	—	
30 Sep. '60	144.0	—	115.1	—	58	107	554	Hudson River	2,077,132	489,138	1,852,716	755,998	12,283	2,620,997	101.5	285,763	343,021	119,454	16	—	—	—	—	—	—		
30 Sep. '60	84.0	—	2.5	10.8	17	40	126	Long Island	26,297,149	257,077	921,131	24,000,000	209,356	41,045,288	654.9	7,309,042	2,601,063	6	92	—	—	—	—	—	—		
30 Sep. '60	297.8	258.1	313.8	—	211	237	3,171	New York Central	31,148,015	4,172,192	31,11,385	11,000,000	25,320,505	2,074,795	38,401,300	495,0,319,000	5,180,321	1,827,406	16	—	—	—	—	—	—		
30 Sep. '60	446.0	—	19.0	282.5	219	94	2,763	New York and Erie	8,022,786	*	5,717,190	6,055,752	—	152.9	1,142,851	433,716	—	—	—	—	—	—	—	—			
30 Sep. '60	138.0	—	21	29.6	33	93	576	New York and Harlem	244,412	34,756	120,000	135,000	6,000	261,000	8.0	40,480	36,352	26,346	—	—	—	—	—	—			
30 Sep. '60	8.0	—	—	—	8	8	8	New York and Flushing	480,684	—	1,000,000	—	—	1,000,000	—	ope. r. by Central.	60,000	6	—	—	—	—	—	—			
30 Sep. '61	99.0	—	—	—	—	—	—	Niagara Bridge and Canand.	4,809,856	—	1,500,000	3,077,000	—	4,577,000	121.8	395,128	458,912	153,080	—	—	—	—	—	—	—		
30 Sep. '60	118.0	3.8	17.7	—	28	14	578	Northern (Ogdensburg)	7,6	46	396,340	213,500	4,875	35.9	69,758	119,666	64,753	8	—	—	—	—	—	—	—		
30 Sep. '60	35.9	—	2.2	—	7	6	84	Oswego and Syracuse	820,518	81,166	665,419	1,000,000	192,748	75.4	79,240	80,611	37,436	—	—	—	—	—	—	—			
30 Sep. '60	75.4	—	2.3	—	6	4	33	Potsdam and Watertown	755,124	157,048	610,000	140,000	750,000	59.2	119,325	269,553	131,525	6	—	—	—	—	—	—			
30 Sep. '60	25.2	—	2.0	—	5	13	70	Rensselaer and Saratoga	654,021	—	557,560	160,000	19,980	—	ope. r. by B.	N. Y. & E. E. 22,047	—	—	—	—	—	—	—				
30 Sep. '60	18.5	—	1.2	21.3	—	—	—	Rochester and Genesee Valley	70,468	1,050	10,305	61,213	71,518	18.0	3,365	634	54	—	—	—	—	—	—	—			
30 Sep. '60	18.0	—	1.0	—	1	—	—	Sacketts Harbor, Rome & N.Y.	480,684	—	300,000	83,000	—	—	ope. r. by Ren.	s. & Sar.	5	—	—	—	—	—	—	—			
30 Sep. '60	21.0	—	1.6	2	2	11	21	Saratoga and Schenectady	820,518	81,166	500,000	378,000	3,376	47.3	114,731	175,604	60,113	—	—	—	—	—	—	—			
30 Sep. '60	40.8	6.7	3.8	9	11	84	Saratoga and Whitehall	251,389	36,443	62,731	63,374	—	13.0	—	15,720	11,800	—	—	—	—	—	—	—				
30 Sep. '60	13.0	—	0.3	—	2	6	6	State Island	2,854,212	*	1,200,130	1,643,153	121,065	81.0	191,579	227,488	139,817	—	—	—	—	—	—	—			
30 Sep. '60	81.3	—	7.6	13	12	17	117	Syracuse and Binghamton	1,366,326	108,437	305,740	247,155	—	112.0	280,643	312,066	160,237	—	—	—	—	—	—	—			
30 Sep. '60	31.9	—	3.5	—	10	9	123	Troy and Boston	258,835	36,073	274,400	—	—	—	ope. r. by Hud.	a. River.	6	—	—	—	—	—	—	—			
30 Sep. '60	6.0	—	—	—	—	—	—	Troy Union	752,601	—	30,000	680,000	—	—	ope. r. by othe.	r. Co's.	—	—	—	—	—	—	—	—			
1 Jan. '61	104	—	2.1	—	—	—	—	Warwick Valley	185,000	—	100,000	85,000	—	185,000	104.7	96.7	212,235	351,167	178,067	6	—	—	—	—	—	—	
30 Sep. '60	96.7	—	11.0	—	17	11	288	Watertown and Rome	1,948,640	327,304	1,499,000	772,400	60,112	—	—	—	—	—	—	—	—	—	—	—	—		
NORTH CAROLINA.																											
31 May. '60	94.9	—	6.4	—	—	—	—	Atlantic and North Carolina	2,157,503	*	1,000,000	4,000,000	—	1,545,225	400,000	276,372	2,419,401	94.9	—	103,953	35,572	—	—	—	—	—	—
—	—	—	22.0	—	—	—	—	North Carolina	4,235,000	—	973,300	—	—	122.0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	59.7	—	—	—	—	Raleigh and Gaston	1,240,241	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30 Sep. '60	161.5	15.0	—	—	23	18	182	Wilmington and Manchester	2,632,737	—	1,130,470	1,045,900	51,300	2,984,509	171.9	79.0	469,458	219,688	—	—	—	—	—	—	—	—	—
30 Sep. '60	161.9	—	5.0	—	24	32	144	Wilmington and Weldon	2,669,223	*	107,000	1,340,213	791,055	102,391	3,114,954	171.0	323,069	477,554	235,201	8	—	—	—	—	—		

## RAILROAD SHARE LIST, including Mileage, Rolling Stock, etc., etc.

An asterisk (\*) occurring in the column headed "Rolling-Stock," signifies that the cost is included in that of "Railroad and Appurtenances." A dash (—) signifies "nil." Running dots (---) signify "not ascertained." Land-Grant Railroads are in *italics*.

Years ending.	Railroad.										Equipment.				Abstract of Balance Sheet.										Earnings.					
	Main Line.	Lateral and Branch Lines	2nd Track and Sidings.	Road in progress or projected	Cars	Engines.	Passenger.	Freight, etc.	Companies.				Railroad and Appurtenances.	Invested in foreign works.	Share Capital paid in.	Bonded and Mortgage Debt.	Floating Debt.	Total, incl. all other assets and liabilities.	Road operated, incl. road leased, etc.	Mileage run by locomotives with trains.	Gross.	Net.	Dividends.	Price of shares.						
M.	M.	M.	M.	No.	No.	No.	No.											M.	M.	\$	\$	p. c.	p. c.							
31 Oct. '61	50.0	12.0	5.0	88.5	8	5	59	PENNSYLVANIA, (Continued.)																						
31 Dec. '61	467.5	—	63.7	104	80	1,261	Pittsburg and Connellsburg	2,828,896	90,803	*	31,408	1,756,436	1,500,000	85,812	3,425,836	22.0	11,408	70,228	21,217	—	31									
30 Sep. '59	31.0	—	—	11.0	—	—	—	Pittsburg and Steubenville	6,249,433	10,264,996	1,847,323	18,939 5+1	467.5	2,434,641	3,031,787	1,299,721	—													
30 Sep. '59	54.0	—	3.0	—	7	7	26	Schuylkill and Susquehanna	1,947,462	*	—	1,221,277	280,000	—	—	—	—	—	—	—	—	—	—	—						
30 Sep. '59	9.2	16.3	14.9	—	—	—	—	Schuylkill Valley	1,258,700	*	—	1,258,700	97,000	—	1,355,700	54.0	—	—	—	—	—	—	—	—						
31 Mar. '61	28.0	1.2	2.0	—	4	1	445	Shamokin Valley & Pottsville	1,241,487	95,888	363,004	864,450	789,970	60,821	1,724,227	—	573,616	24.5	34,501	29,604	34	—								
31 Dec. '59	148.0	—	20.0	140.0	—	—	—	Sunbury (Phila.) and Erie	4,506,920	4,369,070	861,271	10,169,869	148.0	—	—	—	—	96,227	54,582	—	—	—	—	—	—					
30 Nov. '59	29.6	6.5	31.9	—	8	3	127	Tioga	703,349	85,932	—	97,550	396,000	—	—	—	—	114,126	61,848	16	—									
30 Sep. '59	26.4	—	2.1	—	4	11	8	Westchester and Philadelphia	4,410,638	74,677	—	682,170	944,169	52,424	1,679,301	26.4	—	—	125,597	4,502	—	6	—							
30 Sep. '60	78.0	—	6.0	—	16	8	125	Williamsport and Elmira	4,050,314	—	—	1,500,000	2,200,000	293,895	—	—	78.0	199,878	238,420	860,339	12	—								
1 Jan. '60	50.0	—	2.0	—	12	17	103	RHODE ISLAND.	2,158,000	*	—	1,508,000	276,900	—	—	—	62.0	240,443	331,522	106,782	5	55	—							
30 Nov. '61	13.6	—	0.5	—	3	—	5	N. Y., Providence and Boston	448,666	*	—	4,7917	8,500	—	—	—	13.6	—	26,454	6,914	—	—	—	—	—	—	—			
31 Dec. '58	13.2	1.5	—	182.4	2	—	26	SOUTH CAROLINA.	2,126,539	—	—	250,000	1,916,515	217,577	—	2,134,092	13.2	—	—	—	—	—	—	—	—	—				
31 Dec. '58	54.9	—	47.4	4	3	21	Blue Ridge	801,615	34,372	—	1,201,000	706,365	197,905	1,099,536	51.9	—	—	—	—	—	—	—	—	—	—					
31 Dec. '58	109.6	—	13.9	9	176	—	—	Charlotte and Savannah	1,719,045	*	—	400,000	384,000	—	—	—	109.6	—	283,263	151,536	6	—								
1 Jan. '59	142.2	21.3	—	—	—	—	—	Cheraw and Darlington	600,000	—	—	2,439,769	324,161	—	—	—	49.3	—	341,190	125,871	—	—	—	—	—	—	—			
31 Aug. '58	22.5	—	—	—	—	—	—	Greenville and Columbia	1,429,008	—	—	2,000,000	1,145,000	245,546	2,919,564	164.5	—	—	200,000	22.5	—	5	—	—	—	—	—			
31 July '58	32.0	—	—	—	—	—	—	Kings Mountain	190,230	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
28 Feb. '59	102.0	—	—	—	—	—	—	Laurens	543,403	*	—	400,000	106,218	—	575,729	32.0	—	27,568	8,527	—	—	—	—	—	—	—				
31 Dec. '60	136.0	106.0	—	—	62	59	790	North-Eastern	2,011,652	—	—	985,743	960,410	108,172	2,057,325	102.0	—	220,014	96,145	—	—	—	—	—	—	—				
31 July '58	25.1	—	—	41.9	—	—	—	Spartanburg and Union	—	—	—	—	—	—	2,643,833	—	—	—	25.1	—	—	—	—	—	—	—	—			
30 Sep. '60	47.6	—	—	—	—	—	—	TENNESSEE.	1,021,439	58,133	—	505,214	514,000	99,110	1,137,707	47.6	—	29,967	19,187	—	—	—	—	—	—	—	—			
1859	—	—	17.0	2	—	14	—	Central Southern (Tenn.)	857,947	—	—	833,204	612,000	60,900	—	—	30.0	29,845	9,359	7,488	—	—	—	—	—	—	—	—		
1859	—	30.0	1.8	12	10	171	—	East Tennessee and Georgia	3,637,367	—	—	1,289,673	2,020,000	200,000	—	—	140.0	—	318,718	187,466	—	—	—	—	—	—	—	—		
1859	—	140.0	8.0	10	10	128	—	East Tennessee and Virginia	2,310,033	156,264	—	536,654	1,902,000	390,407	—	—	130.3	150,142	297,806	3 149,167	—	—	—	—	—	—	—	—		
1859	—	271.6	10.4	20.0	43	37	667	Memphis and Charleston	5,866,069	129,364	—	3,809,949	2,659,000	280,112	7,827,797	291.0	—	1,635,096	873,597	—	—	—	—	—	—	—	—			
1859	—	271.6	16.0	20.0	3.9	9	242	Memphis and Ohio	2,259,267	141,144	—	570,000	1,361,000	145,000	—	—	—	—	—	—	—	—	—	—	—	—	—			
1859	—	100.0	30.6	55.8	9	5	242	Memphis, Clarksv. & Louisv.	2,000,000	100,500	—	298,721	740,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
1859	—	59.0	—	40.1	7	5	119	Mississippi and Tennessee	1,137,400	—	—	798,285	554,949	319,518	—	—	59.4	69,870	177,256	60,029	—	—	—	—	—	—	—	—		
1859	—	47.4	—	2.3	4	5	46	Mississippi Central and Tenn.	892,710	82,908	—	317,447	632,500	22,369	—	—	47.4	54,175	83,129	44,666	—	—	—	—	—	—	—	—		
30 Nov. '60	149.7	44.0	7.9	39	17	319	McMinnville and Manchester	533,807	56,816	—	144,984	406,000	5,000	—	—	34.2	30,065	23,808	13,892	—	—	—	—	—	—	—	—			
1860	—	45.8	4.2	11.7	5	5	32	Nashville and Chattanooga	3,632,882	—	—	2,056,544	1,731,000	—	—	—	159.0	734,118	337,384	6	—	—	—	—	—	—	—	—		
1860	—	30.0	0.0	8.0	—	—	—	Tennessee and Alabama	76,016	76,016	—	595,922	860,000	204,544	—	—	45.8	57,950	127,963	87,243	—	—	—	—	—	—	—	—		
1859	—	—	—	158.0	—	—	—	Winchester and Alabama	—	—	—	275,000	240,000	171,563	—	—	50.0	31,300	32,670	—	—	—	—	—	—	—	—	—		
—	—	—	—	56.0	—	—	—	Buffalo Bayou, Braz. & Col'rdo	—	—	—	455,000	975,000	369,000	—	—	70.0	102,200	282,846	196,568	—	—	—	—	—	—	—	—	—	
—	—	—	—	60.0	1.5	2	40	Houston and Brazoria	1,250,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
1 May '61	70.0	—	6.0	280.0	7	5	124	Houston and Texas Central	4,232,345	*	—	455,000	975,000	408,477	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	25.0	—	—	—	San Antonio & Mexican Gulf	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	28.0	—	—	—	Southern Pacific	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
31 May '61	90.7	—	8.6	19.6	8	8	183	VERMONT.	1,514,132	193,422	—	1,280,400	800,000	60,589	—	90.7	118,219	183,750	92,683	—	80	—	—	—	—	—	—	—	—	
31 Aug. '60	119.6	—	13.0	26	18	600	600	Rutland and Burlington	3,989,708	617,743	—	2,233,376	3,172,550	979,119	6,385,045	119.6	349,440	334,368	113,318	—	—	—	—	—	—	—	—	—	—	—
31 Aug. '60	62.0	—	4.0</																											

## New York Stock Exchange.

Highest Sale Prices for the week ending July 9.

Th.3. F.4. Sat.5. M.7. Tu.8. W.9.

## FEDERAL STOCKS:

U. S. 5s, 1871	91	90 $\frac{1}{4}$	90 $\frac{1}{4}$
U. S. 5s, 1874	91	90 $\frac{1}{4}$	90 $\frac{1}{4}$
U. S. 5s, 1865	101	101 $\frac{1}{4}$	102
U. S. 6s, 1881, reg.	101 $\frac{1}{4}$	101 $\frac{1}{4}$	101 $\frac{1}{4}$
U. S. 6s, 1881, cou.	102 $\frac{1}{4}$	101 $\frac{1}{4}$	102
U. S. 6s, 1862	—	—	—
U. S. 6s, 1867	—	—	100
U. S. 6s, 1868	90 $\frac{1}{4}$	100	100 $\frac{1}{4}$
Treasury 7-10 Notes 101	103 $\frac{1}{4}$	103 $\frac{1}{4}$	104

## STATE STOCKS:

California 7s	91	91	91
Georgia 7s	—	—	—
Illinois Coupon bonds	102 $\frac{1}{2}$	—	—
" Canal bonds	—	—	—
Illinois War Loan	—	97 $\frac{1}{2}$	98
Indiana 5s	—	—	—
Indiana War Loan	—	—	—
Kentucky 6s	94 $\frac{1}{2}$	—	—
Louisiana 6s	65	65 $\frac{1}{2}$	65
Maryland 6s	—	98	—
Michigan 6s	—	—	—
Minnesota 8s	—	—	—
Missouri 6s	45 $\frac{1}{2}$	48	47 $\frac{1}{2}$
Do. iss. to H. & St. J. R.	55 $\frac{1}{2}$	57	60 $\frac{1}{2}$
New York 6s, 1873	—	—	—
North Carolina 6s	70	70 $\frac{1}{2}$	—
South Carolina 6s	—	—	—
Ohio 6s	103	102 $\frac{1}{2}$	102 $\frac{1}{2}$
Tennessee 6s, 1890	50	53 $\frac{1}{2}$	53 $\frac{1}{2}$
Virginia 6s	56	—	53

## RAILROAD SHARES:

Buffalo & State Line	—	—	—
Chicago, Burl. & Q. 75	76 $\frac{1}{2}$	77	77 $\frac{1}{2}$
Chicago and Rock Isl. 62	64	64 $\frac{1}{2}$	65 $\frac{1}{2}$
Clev., Col. and Cin.—122	123	123	—
Clev. and Pittsburgh 21 $\frac{1}{2}$	21 $\frac{1}{2}$	22 $\frac{1}{2}$	23 $\frac{1}{2}$
Clev. and Toledo 45 $\frac{1}{2}$	47 $\frac{1}{2}$	48	47 $\frac{1}{2}$
Del. Lack. and West 96	—	—	—
Galena and Chicago 67	69 $\frac{1}{2}$	69 $\frac{1}{2}$	69
Hudson River 45 $\frac{1}{2}$	45 $\frac{1}{2}$	45	45 $\frac{1}{2}$
Illinois Central (scrip) 57	58 $\frac{1}{2}$	60 $\frac{1}{2}$	59 $\frac{1}{2}$
Michigan Central 57 $\frac{1}{2}$	59	60	60 $\frac{1}{2}$
M. S. and N. I. guard'd. 53	54 $\frac{1}{2}$	56 $\frac{1}{2}$	59
M. S. and N. I. 23 $\frac{1}{2}$	25	25 $\frac{1}{2}$	27
Mil. and P. du Chien 30 $\frac{1}{2}$	33 $\frac{1}{2}$	33 $\frac{1}{2}$	34 $\frac{1}{2}$
M. and P. du C. 1st pref.	—	—	—
M. and P. du C. 2d pref.	—	—	—
New Jersey	—	—	—
New Jersey Central	—	—	—
New York Central 88 $\frac{1}{2}$	90	90 $\frac{1}{2}$	90
Erie 35 $\frac{1}{2}$	35	34 $\frac{1}{2}$	34 $\frac{1}{2}$
Erie pref. 61 $\frac{1}{2}$	62	61 $\frac{1}{2}$	61 $\frac{1}{2}$
N. York and Harlem 15	15 $\frac{1}{2}$	15 $\frac{1}{2}$	16
N. Y. and H. "pref." 34	37	37 $\frac{1}{2}$	37 $\frac{1}{2}$
Panama 130	135	134 $\frac{1}{2}$	134 $\frac{1}{2}$
Phila. and Reading 56	57 $\frac{1}{2}$	57	57 $\frac{1}{2}$
Toledo & Wabash	20	—	20
" Pref.	42	44	45

## RAILROAD BONDS:

Buff. N.Y. & Erie 1 M.	—	—	—
Chic. and N.W. 1st M.	64 $\frac{1}{2}$	—	—
" " 2d M. 25	26	31 $\frac{1}{2}$	31 $\frac{1}{2}$
" " S. F.	95	95	—
Cl. & Tol. S.F. 7 p.c.	—	—	93 $\frac{1}{2}$
Chi. and Bur. Q. 8 p.c.	—	—	—
Chi. and R.I. 1st M. 70	—	—	—
D.L. & W. 1M. 8p.c.'71-5	—	—	—
" 2M. 8p.c.'81	—	—	—
Gal. & Chi. 1M. 7p.c.'63	105	—	—
" 2M. 7p.c.'75	—	—	—
Hann. & St. J. 1 M. 8s	—	—	52
Hudson R. 1M. 7p.c.'69	—	—	—
" 2M. 7p.c.'60	—	—	—
" 3M. 7p.c.'75	93	—	94
" sink. fund.	—	—	—
Illinois Central bonds. 90 $\frac{1}{2}$	93	—	95
La Crosse & Mil. L. G.	—	—	—
Mil. and P. du C. 1st M.	—	—	—
Mich. Cen. S.F. 8p.c.'82	—	—	—
" conv. 8p.c.'69	105 $\frac{1}{2}$	—	—
M.S. & N.I. 1 M. S.F. 90 $\frac{1}{2}$	90 $\frac{1}{2}$	90 $\frac{1}{2}$	100
" 2 M. 80 $\frac{1}{2}$	81	82	83
N. J. Central 1st M.	—	—	—
" 2d M.	—	—	—
N.Y.C. 6p.c. certif.'83	101	—	100 $\frac{1}{2}$
" 1 M. 7p.c.'64-102	—	—	102
" bonds 1876	—	—	—
N.Y. & E. 1 M. 7p.c.'07	—	106 $\frac{1}{2}$	108 $\frac{1}{2}$
" 2 M. 7p.c.'64	104	—	105
" 3 M. 7p.c.'83	97	97	98
" 4 M. 7p.c.'80	—	—	—
" 5 M. 7p.c.'83	—	—	—
N.Y. & H. 1 M. 7p.c.'73	—	104 $\frac{1}{2}$	—
" 2 M. 7p.c.'64	—	—	—
" 3 M. 7p.c.'67	—	83	85
Pitts., Ft. W. & Chi. 1M. 86	90	89 $\frac{1}{2}$	90 $\frac{1}{2}$
" 2d M.	78	—	—
" 3d M.	—	—	—
Terre H. & Alton, 1 M.	80	—	79
" 2 M.	—	—	82
Toledo & Wab. 1 M.	90	90 $\frac{1}{2}$	91
" 2 M. 55 $\frac{1}{2}$	60	65	64 $\frac{1}{2}$

## MISCELLANEOUS:

American Gold 110 $\frac{1}{2}$	109 $\frac{1}{2}$	110 $\frac{1}{2}$	111
Del. and Hud. Canal 99 $\frac{1}{2}$	92 $\frac{1}{2}$	—	—
Penn'a Coal Co.	—	—	—
Pacific Mail S.S. Co. 112	118 $\frac{1}{2}$	113	112
	106	—	—

The following are the closing prices in the London Market on the 27th June:

United States 5s, 1874	x. c. 76	to	78
Maryland 5s	79	"	81
Virginia 6s	47	"	49
Atlantic and Great Western, N. Y. sec., 1st mort., 1880, 7 per cent.	x. c. 63	"	65
Erie shares, ex assessment scrip	31	"	31 $\frac{1}{2}$
Erie shares, 7 per cent, preference	54	"	56
Erie shares, assessment scrip	14	"	24
Illinois Central 6s, 1875	73	"	75
Illinois Central 7s, 1875	x. c. 78	"	80
Illinois Central \$100 shares, \$90 paid, dis.	46	"	45
Illinois Central, all paid	50 $\frac{1}{2}$	"	51 $\frac{1}{2}$
Michigan Central 8s, Convertible, 1869	78	"	80
Michigan Central Sinking Fund 8s, 1852	87	"	89
Michigan South. and North. Indiana 7s, 1885	—	—	—
Do. do. do. \$100 shares	—	—	—
New York Central 6s, 1883	82	"	84
New York Central 7s, 1884	x. c. 86	"	88
New York Central 7s, 1876	89	"	91
New York Central \$100 shares	—	—	—
New York and Erie 7s, 1867	91	"	93
New York and Erie, 2d mort., 1859	89	"	91
New York and Erie, 3d mort., '83, assented	82	"	83
New York and Erie, 4th mort.	75	"	76
New York and Erie, 5th mort.	72	"	74
New York and Erie Bonds, 1862, '71, '75	—	—	—
Panama, 1st mortgage 7s, 1865	99	"	101
Panama, 2d mortgage 7s, 1872	99	"	101
Pennsylvania Central 6s	x. c. 83	"	86
Pennsylvania Central 2d mortgage	84	"	86
Pennsylvania Central \$50 shares	—	—	—
Philadelphia and Reading \$50 shares	20	"	25

is nearly ready for turning out. We understand the trials to which those already placed on the road have been put resulted quite satisfactorily. On this point the public will soon have a full opportunity to witness for themselves the performance of those novel engines. The cost of one of them will not exceed that of a first-class locomotive. We annex a description of these dummies," corrected in one or two unimportant particulars, which appeared in the *Scientific American* of last week :

The city of Paterson, N. J., has long maintained a high reputation for building locomotive steam engines. Last year this business was almost suspended, but it has since greatly revived, and is now rapidly improving. There are three large locomotive establishments in Paterson, viz.:—The Rogers' Locomotive and Machine Works, the New Jersey Locomotive and Machine Company, and Danforth, Cooke & Co.'s Locomotive and Machine Works. In the latter there are about two hundred and thirty men now employed. One dummy engine for drawing the cars of the Hudson River Railroad through the streets of New York is now being built there. It is the third of this character provided for the same company. The two which were previously furnished have, after long trial of their qualities, given great satisfaction. The dummy is a condensing locomotive of peculiar construction, and its object is to supersede horses in the streets of the city. Outwardly it resembles a big box on wheels, like a freight car with a chimney. This long box is made of boiler iron; it has double hollow sides which contain water, and form the tank of the engine. The boiler, engine, condenser and pumps are placed within this box and supported on a suitable framing. The boiler is vertical and tubular, and spreads out toward the top. The engines consisting of two horizontal cylinders with their appurtenances, are placed in front of the boiler, and very nearly in the middle of the car, inside of the wheels. The cylinders are each eleven by fifteen inches, and their piston rods work a transverse double crank shaft situated close to the lower part of the boiler. On the outer ends of this shaft are grooved friction pinions, each twelve inches in diameter; these gear into large grooved friction wheels, each thirty inches in diameter, and from the shaft of the latter, motion is given by connecting rods to the two front and two back driving wheels at each side. This frictional gearing, as a substitute for cog gearing for reducing the speed of the driving wheels, is an excellent arrangement. One of these dummy engines will haul twenty-four cars. The speed, of course, is slow, but this is a necessary requirement for large cities. The object of using a condensing locomotive for such a purpose, is to obviate the noise peculiar to the exhaust in the smoke stack. The cylinders of the dummy exhaust in front into a small tubular condenser, the condensing water of which is supplied from the tank. The water to feed the boiler passes from the condenser by a tube into a cylindrical iron well situated under the two feed pumps, which are placed close together between the two cylinders, and are worked from the link motion. The feed is thus always proportioned to the amount of steam consumed, which is carried at from 110 to 140 lbs. on the inch, and is cut off short. The construction of such an engine is far more difficult than a common locomotive, because it embraces more parts, and these are required to be arranged in a very small compass. Coke is used as the fuel so as to obviate smoke, and a blower is employed to furnish the draft.

## Illinois Southern Railroad.

The Lawrenceville *Globe* says such arrangements have recently been made with other railroad companies as to insure the completion of the first twenty-five miles (Lawrenceville to Mr. Carmel) during the present season; that Messrs. Stanton have just closed a contract that will en-

The Hudson River Railroad Company have just had two "dummy engines" constructed at the works of Danforth, Cooke & Co., Paterson, for that part of their road within the city limits. A third

able them to commence delivering and laying iron immediately. It also provides for an amount of rolling stock sufficient to do the business of the road (I. S. R. R.) It decides that the iron can be procured and delivered as fast as the grade is prepared to receive it.

#### Railroad Earnings--Monthly.

The earnings of the Hudson River Railroad for June, 1862, were ..... \$151,427 24  
Do., 1861 ..... 122,682 83

Increase ..... \$28,744 41

The earnings of the Toledo and Wabash Railroad for June, 1862, were ..... \$112,677 09  
Do., 1861 ..... 79,073 88

Increase ..... \$34,503 21

The Chicago and Rock Island Railroad earned in June, 1862 ..... \$86,841  
Do., 1861 ..... 131,891

Increase ..... \$35,050

The earnings of the Panama Railroad for June, 1862, were ..... \$155,158  
Do., 1861 ..... 112,000

Increase ..... \$43,158

The receipts of the New York and Harlem Railroad for June are as follows:

June, 1862 ..... \$87,504 41  
" 1861 ..... 97,337 23

Increase ..... \$9,832 82

The earnings of the Galena and Chicago Railroad for June, 1862, were ..... \$162,823 22  
Do., 1861 ..... 215,708 48

Decrease ..... \$52,885 26

Corrected earnings for previous month, 158,194 03

The business of the Illinois Central Railroad for June, 1862, was :

#### Land Department.

Acres Construction Lands sold	..... 5,439.64 for	\$57,712 89
Acres Interest Fund L'd's sold	..... 1,094.46 "	10,781 80
Acres Free Lands sold	..... 2,526.00 "	27,137 59

Total sales during the month	..... 9,060.19 for	\$95,632 28
To which add Town Lot sales	.....	1,493 40

Total of all ..... \$97,125 68

Acres land sold since Jan'y 1, 1862	..... 44,423.74 for	\$515,677 44
Acres sold prev'sly (net sales)	..... 1,260,273.46 for	16,147,983 91

Total ..... 1,304,697.20 for 16,663,661 35

Construction bonds canceled previous to May 31 ..... \$2,112,500 00

Cash collected in June ..... 28,085 66  
158,000 bushels corn received on hand.

Net collections to May 31, 1862 ..... 4,216,522 19

#### Traffic Department.

Receipts from Passengers	..... \$61,083 90
" Freight	..... 165,213 85
" Mails	..... 6,358 34
" Rent of road	..... 5,333 33
" Other sources	..... 2,626 50

Total receipts for June, 1862	..... \$240,565 92
Do. do. 1861	..... 173,941 16

The earnings by the Chicago, Burlington and Quincy Railroad for June, 1862, were \$225,081 77  
Do., 1861 ..... 149,186 54

Increase ..... \$75,895 23

#### Money Matters.

The feature in the money market of greatest interest during the last two days has been the sudden rise in the price of gold, or rather depreciation in that of currency. On Wednesday it advanced five per cent., closing at 116, which figure it maintained on Thursday; though without the unusual excitement which had prevailed the day before. As the matter now stands, every six dollars of indebtedness is discharged by about five, debtors of all description having that advantage at the cost of their creditors.

How, where, or when this alarming decline in the currency is to stop, seems to puzzle the wisest. It is pretty safe, however, to reckon that for a long time to come, gold and paper will not be in much closer relationship than at present. Nothing can bring the latter up to or near par except a general conviction that no more demand notes will be issued by the government, the market being already flooded with them at the West, as well as the East.

The late action of Congress, in authorizing a new issue of \$150,000,000, has doubtless been the prime cause of this advance in the price of specie. We deprecated strongly that second issue, when the subject was first mooted. For the fact of putting into circulation hundreds of millions of dollars more than are needed must as inevitably lead to a depreciation in value as to glut the market with any other commodity, after it had been abundantly supplied. It deserves notice, too, that the Banks have lately been also increasing their circulation quite largely, as if one evil were not enough at a time.

Speculation is the occasion, not the cause of this alarming condition in monetary affairs. Its pernicious effects cannot now be wholly neutralized; but may be to some extent by an announcement on the part of the Secretary of the Treasury, that the new issue of notes will not be put in circulation while gold continues to sell at such a premium. Or if this be impossible, that no notes will be issued a second time, but destroyed as fast as they are received, as is done by the Bank of England.

The conversion of demand notes into "five-twenty" year bonds has almost entirely ceased.

Railroad securities have improved on the whole during the week; but as these are sold for currency, it is questionable whether this end of the scale has risen more highly than the other has sunk.

#### Sugar River Valley Railroad.

The contract for grading and bridging this road from Madison to Poynette has been let to Joseph Parkens of Madison, for \$15,000. Mr. P. is an old contractor, and a man of great energy. The work will be prosecuted to an early completion. The balance of the road between Poynette and Portage will also be let in a few days.

#### Racine and Mississippi Railroad.

The managers of this road say it will certainly be opened during the present year to the Mississippi river. The Kenosha, Rockfort and Rock Island Railroad will be equipped for business. These roads will be important tributaries to local business of the Milwaukee and Chicago Railroad, as a large portion of their grain must go to Milwaukee as a commercial necessity.

#### Our Trade With the British North American Provinces.

It appears from an official report of the Secretary of the Treasury, showing the quantity and value of the different articles of merchandize imported into the United States from British North American provinces under the Reciprocity treaty, that the total value in 1859 was over \$15,000,000, and in 1860 more than \$12,500,000, and in 1861 \$21,000,000. The table shows in the last year a falling off in fish, furs, fruits, hides and wool, an increase in animals, ashes, bark, butter, cheese, coal, eggs, flax, flour, grain, meats, oats, timber, etc. Animals of all kinds, \$1,746,000; fish of all kinds, \$1,362,000; flour and breadstuffs, over \$3,000,000; grain, \$6,500,000; timber of all kinds, \$3,289,000. The respective amounts of other imports are not enumerated.

 The *Scientific American* says that the extensive machinery manufacturing establishment of Messrs. SELLERS, in Philadelphia, was never more busily employed than at present in the manufacture of laths, planers, and all the various machines that are employed for making the parts of engines and machinery for general manufacturing purposes. This is a good indication of the wonderful prosperity and activity of some manufacturing operations amid the conflict now existing in our land. This firm has manufactured about 1,000 Giffard's injectors, about half the number of which were for stationary engines, and the others for locomotives. These ingenious boiler feeders are now employed, to some extent, on almost every railroad in this country.



#### RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.

THE thirty-ninth Annual Session of this Institution for instruction in the MATHEMATICAL, PHYSICAL, and NATURAL SCIENCES, will commence on Wednesday, Sept. 17th, 1862. Appropriate quarters, and a full supply of apparatus, will be provided, so that all the Courses of Instruction can be given precisely as heretofore. The new buildings for the Institute will be placed on a more commanding site, and be constructed as soon as possible.

The ANNUAL REGISTER, containing full information, can be obtained from  
3m27 Prof. CHARLES DROWNE, Director.

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 PHILIP F. PASQUAY, 25 Spruce st., N. Y.

DOUBLE BELTS TWICE THE PRICE OF SINGLE Best Lace Leather and Steel Hooks for round Belts always on hand.  
 In comparing my List of Prices with others, it will be necessary to compare also the quality of Belting. 3m28

**COTTON WASTE**  
 OF DIFFERENT QUALITIES,  
 FOR MACHINERY AND  
**RAILROAD USE**  
 CONSTANTLY ON HAND.

K. EGAN & CO.,  
 19 Burling Slip, N. Y.

**BOARDMAN'S**  
**Patent Steam - Boilers**

SAVE over 30 per cent. of the fuel required for fine or plain cylinder boilers, while they have all the advantages of strength, cheapness and simplicity of construction, convenience and safety in use, claimed for either. Send for a circular.

H. BOARDMAN,  
 No. 84 Broadway, N. Y.

**CAR AXLE WORKS.**



A. & P. ROBERTS,  
**PENCOYD IRON WORKS,**  
 OFFICE NO. 410 WALNUT STREET,  
 PHILADELPHIA. Rolled or Hammered Car Axles, Bar Iron and Forgings.

**A. WHITNEY & SONS**  
**CAR WHEEL WORKS,**

Callowhill & Sixteenth Sts.,  
 PHILADELPHIA, PENN.,  
 FURNISH

**CHILLED WHEELS,**  
 FOR CARS, TRUCKS, and TENDERS.

**CHILLED**  
 Driving Wheels and Tires  
 FOR LOCOMOTIVES.

ROLLED AND HAMMERED AXLES.

**WHEELS and AXLES,**  
 FITTED COMPLETE.

G. G. LOBDELL, H. S. McCOMBS, D. P. BUSH

**BUSH & LOBDELL,**  
 WILMINGTON, DELAWARE,  
 MANUFACTURERS OF

**CHILLED WHEELS**  
 AND

**T I R E S ,**  
 FOR RAILROAD CARS

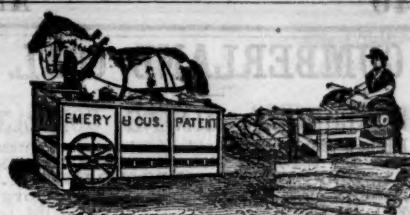
AND  
**Locomotive Engines,**  
 ARE PREPARED TO EXECUTE PROMPTLY

ORDERS TO ANY EXTENT FOR THEIR  
 CELEBRATED WHEELS,

EITHER SINGLE OR DOUBLE PLATE,  
 WITH OR WITHOUT AXLES.

**WHEELS FITTED**

To HAMMERED or ROLLED AXLES,  
 IN THE BEST MANNER, AT THE SHORTEST NOTICE,  
 AND ON THE MOST REASONABLE TERMS.



## IMPORTANT TO RAILROAD COMPANIES.

### THE ATTENTION OF RAILROAD MANAGERS

Is called especially to the Machines manufactured especially for the use of Railroad Companies by the proprietors of the

**ALBANY AGRICULTURAL WORKS,**  
 CONSISTING OF

**EMERY'S PATENT**  
**Railway Horse Power,**

Made changeable for both right and left hand work, also with changeable degrees of forces and motions of the driving Pulleys without changing the Speed and Labor of the Horses, thereby adapting them to the different uses required, as Sawing Wood, Pumping Water, Driving Elevators and Machine Shops, Foundries, etc. The Power is also adjustable to any degree of wear or use, so as to always insure its working with its greatest efficiency. All the running chains in these Powers are made of the best MALLEABLE IRON which gives to them triple the strength and durability of Grey Iron which last is universally used by all other Railway Horse Power Manufacturers—thereby at the same time lessening the weight of these several hundred pounds, making them less cumbersome for handling and transportation.

### WOOD SAWING MILLS.

These Sawing Mills are made upon the most approved and convenient plans in use. Having a heavy plate fly-wheel fixed to the Mandrill with a Ratchet or catch pulley for the driving band on the outside of the fly-wheel—the journal bearings are fitted with Babbit Metal—the wood carriage traverses on iron ways and gibbons 24 or 26 inch Saw is fitted, filed and set in working order and the plates warranted. When desired, a 14 inch saw is fitted, also a table for the purpose of slitting boards, etc., for fencing and carpenter work.

The whole together forming one of the most complete and desirable sets of machines for their purposes. They are already in very general use on nearly all the principal Railroads in this country.

PRICE, ONE HORSE POWER ----- \$90.00  
 " " " " ----- 120.00  
 " " SAW MILL, 24 in. Saw ----- 37.00  
 " " SETT BANDS and EXTRAS ----- 5.00

### PUMPING ENGINES

Of different kinds for Raising Water for Railroad tanks and other purposes, can be furnished on demand with Reciprocating or Rotary Pumps—fitted to be operated by these Horse Powers and the best adapted for Railroad and Mining purposes. One of the SEVENTY-FIVE DOLLAR PUMPING ENGINES when driven by the TWO HORSE POWER has a capacity equal to any Four or Five Horse Power Steam Engine and Pumping Machine for the same purposes.



### THRESHING MACHINES

Of the most approved kinds, for one and two horses and with simple Separators, or with Complete Cleaners which fit the grain market in one and the same operations, and of the most approved construction.

They are very extensively introduced into all the grain-growing sections of this country and the world. They are especially adapted to the use of the above Horse Powers and can be driven by Steam or Water power with equal advantage. They will be furnished on the most liberal terms and warranty.

Liberal discounts made to RAILROAD COMPANIES from the above prices, and agents solicited for the sale of their manufacturers.

For further particulars see the new Illustrated and Price Catalogue of the ALBANY AGRICULTURAL WORKS, furnished gratis on application to the proprietors.

**EMERY BROTHERS,**  
 No. 62 & 64 State st.,  
 ALBANY, N. Y.

## CUMBERLAND COAL.

### THE BORDEN MINING COMPANY

ARE now prepared to fill orders and to make contracts A for the season of 1862, for CUMBERLAND COAL, DELIVERABLE ON BOARD VESSEL AT Baltimore, Md., Alexandria, Va., or Georgetown, D. C. Purchasers may rely upon the Coal proving equal in quality to that heretofore furnished.

The Company also have the pleasure of announcing that they have completed, after two years' labor, their shaft and machinery upon their new property in the VALLEY OF GEORGE'S CREEK, and are lifting from the very heart of the Coal Basin a superior and perfect article of BITUMINOUS COAL, remarkably free from impurities of every description, and possessing qualities peculiarly adapting it to Locomotive use, and to generating steam under all circumstances. This Coal will be known in market as "BORDEN'S PIT COAL."

Our Railroad friends, and others requiring a superior Coal, will find it to their interest to give this a trial before contracting elsewhere.

For prices and other information apply to

**WILLIAM BORDEN.**

3m21 Nos. 70 and 71 West st., New York.

**LEMUEL W. SERRELL,**  
SOLICITOR OF  
AMERICAN & FOREIGN PATENTS,  
No. 121 NASSAU ST.,  
NEW YORK.

### VENTILATION.

THE undersigned has devised and patented the only system of VENTILATION for Buildings, Vessels, RAILROAD CARS, etc., by which spontaneous ventilation can be effectually carried out; and is willing to dispose of the same to parties desirous of purchasing at a reasonable price.

Address HENR RUTTAN,  
Coburg, Canada.

### THE GREAT FIRE IN TROY.

## Unparalleled Triumph OF LILLIE'S SAFES!

The following certificates explain themselves:

TROY CITY BANK, May 21, 1862.

Lewis Lillie, Esq.—Dear Sir: I am sure it will give you as much pleasure to know as it does me to say, that in the recent fire of the 10th inst., which desolated our city and destroyed our Banking-house, the contents of our Bank vault, though the building itself was a heap of ruins, remained entirely unharmed. This result we attribute entirely to the fact that our old Wrought Iron Doors were, about two years since, exchanged for a set of your celebrated Chilled and Wrought Iron Doors and Frames. With the old doors, not a book or paper in the Vault could have been saved; as it is, nothing in it was even damaged, though exposed to the most intense heat.

Yours, respectfully,

S. K. STOW, Cashier.

Troy, N. Y., May 14, 1862.

The undersigned, using Lillie's Chilled and Wrought Iron Fire and Burglar Proof Safes, at the time of the late disastrous fire in this city, would state that our safes were subjected to a severe test by fire, the heat varying in intensity, according to the locality and surroundings. The time they were exposed to the fiery ordeal, unprotected by water, varied from 24 to 72 hours. We would say that our money, papers, books, etc. were well preserved, and the Safes are suitable for further use. By comparison with Safes of other manufacture, equally exposed, we have no hesitancy in recommending Safes of Lillie's manufacture to the public on their demonstrated merit as entitled to unparalleled confidence as fire-proof.

James Kenyon,  
S. O. Giesen, S. Bachelder,  
Percy & King, Gates H. Barnard,  
McCoyle & Beadle, W. D. Haight,  
Coon & Van Valkenburgh, Denlo & Frelot,  
S. S. McClure, Walsh, Petit & Anthony,  
Ross & Smith, J. H. Snyder,  
Robert Green, Jonathan Seaman.  
Not dug out—nothing in them.

Troy, May 19, 1862.

The undersigned had one of Lillie's Wrought and Chilled Iron Safes, which went through the fire of the 10th of May. The Safe was exposed to a severe fire for over 24 hours. In falling it turned on its face, and when turned up to open the doors was red-hot. The back of the lower part of the Safe (behind the books) was filled with pennies, which, in falling over, pressed against the books, and brought them directly in contact with the doors. The wrappers on the pennies were mostly good. The books were unfit for further use, but the writing on them was partially legible and could be copied.

DUSENBURY & ANTHONY.

Troy, May 19, 1862.  
This is to certify that we had in our store, in this city, when it burned, one of Lillie's Small Safes, which was in the fire, without water on the building or Safe. Most of the valuables were removed before the fire, and therefore we were not in haste to get the Safe out of the burning ruins. Some of the papers left in the Safe were legible when taken out, but most of them were charred.

I. M. SINGER & CO.

Per G. W. BABCOCK, Agent.

This is to certify that the undersigned had one of Lillie's Patent Chilled Iron Safes in their store, which was burned during the late severe fire in this city, and we are happy to state, the Safe preserved all its contents in first-rate condition. All the papers were legible, and the books will do for further use, without even rebinding.

GRANT, NUTTING & CO.

The foregoing comprises all the Safes of my manufacture that were in the fire, and below will be found certificates from all the owners of Safes manufactured several years since, by World's Safe Company, who used my Patent Chilled Iron Shell, but not my Fire-Proof Cement.

### WORLD'S SAFE COMPANY'S SAFES.

TROY, May 19, 1862.  
The undersigned, having Safes manufactured by the late World's Safe Company, and which were subjected to the great fire of the 10th inst., in this city, would state that our Safes were exposed to a severe heat, being confined in the burning ruins, unprotected by water, from one to three days. On opening the Safes the contents were mostly legible, and to a far greater extent than could be reasonably expected of any Safe. We concur in the opinion that the Safes manufactured by Lewis Lillie, which were subjected to the fire for a longer time and preserved their contents, are superior and powerful protectors against fire, and by this test we are prepared to recommend them as such to public patronage.

Lyman Bennett, Shilman, Matthews & Co.,  
Flood & Dunham, E. L. Mallory,  
John Hutchinson, E. H. Virgil,  
Sup't National Express Co.

The undersigned, having Safes manufactured by the late World's Safe Company, and which were subjected to the great fire in this city, would state, that on opening our Safes the contents were mostly legible. We concur in the opinion that the Safes manufactured by Lewis Lillie, which were subjected to the fire for a longer time and preserved their contents, are superior and powerful protectors against fire, and we are happy to recommend them to public patronage.

W. & L. E. GURLEY,  
R. L. & G. DRAKE,  
LEONARD SMITH,  
H. E. & W. ALENDORPH, Absent.

TROY, May 19, 1862.  
To whom it may concern: We would certify that when the recent fire broke out in this city, we took out from our Safe (which was made by World's Safe Company) all our books, papers, etc., and then left it to the flames without shutting the door, and the Safe will do for further use by being repaired, although the book case was destroyed by the door being left open through the fire.

ACKLEY & CO.

TROY, May 19, 1862.  
The undersigned, using Safes manufactured by the World's Safe Company, at the time of the late disastrous fire on the 10th instant, in this city, would state that our Safes were filled with fire-brick for the fire-proof, and while several of this class preserved their contents, were considerably charred, and only a few legible. In justice to Mr. Lewis Lillie, we are pleased to state that Safes of his manufacture proved to be powerful protectors against fire, and have preserved their contents, after having been exposed to the fiery ordeal, unprotected by water, from one to three days.

Stephen Holton, Luther Greenman,  
Bennett, Strickland & Fellows, E. W. Johnson,  
Corliss & House, J. H. Goodsell.

TROY, N. Y., May 17, 1862.  
LEWIS LILLIE—Dear Sir: We were using at the time of the late severe fire of 10th inst., a Safe purchased in 1852 of the late World's Safe Company. The contents were considerably charred, but our Ledger is mostly legible, and we are able to copy it.

The Safe was subjected to a severe heat for over eighteen hours, and we are satisfied that if water had been thrown on the ruins, as is ordinarily the case, the contents would have come out uninjured. You will please repair our Safe, placing it in the improvements embraced in Safes of your manufacture, and oblige.

SHEDDON & GREENE.

N.B.—The above Safe is believed to have damaged the contents more than any of those named in this circular.

There were only seven Sheet Iron Safes, made by Herring and others, outside of the railroad depot, that were exposed to the fire, four of which were entirely burnt out; the fifth was saved by being early cooled off by water; the remaining two were not severely tested.

LEWIS LILLIE.

H. R. HUBBELL, Agent,  
No. 198 Broadway, New York.

**T. G. SELLEW,**  
MANUFACTURER OF  
Desks and Office Furniture,  
WAREROOM { No. 107 FULTON ST.,  
Near Nassau, N. Y.  
LIBRARY FURNITURE made to order.

## THE ROGERS Locomotive & Machine WORKS,

SUCCESSORS TO

ROGERS, KETCHUM & GROSVENOR,

PATERSON, N. J.,

HAVING extensive facilities, are now prepared to furnish

promptly of the best and most approved description, either

COAL OR WOOD BURNING

LOCOMOTIVE ENGINES

AND OTHER VARIETIES OF

RAILROAD MACHINERY.

J. S. ROGERS, Pres't, ; Paterson, N. J.

WM. S. HUDSON, Sup't, ;

M. K. JESUP, Vice Pres't.

L. P. STARR, Sec'y and Treas'r.

44 Exchange Place, New York.

## THE TAUNTON LOCOMOTIVE MANUFACTURING COMPANY,

TAUNTON, MASS.,

HAVING large facilities, and having had a long experience in the business, are prepared to furnish

LOCOMOTIVES,  
EITHER FOR BURNING WOOD OR COAL,  
OF THE MOST APPROVED CONSTRUCTION.

ALSO ALL KINDS OF

RAILROAD MACHINERY,  
STATIONARY ENGINES AND BOILERS,  
SUGAR MILLS, SHATTING, ETC.

W. W. FAIRBANKS, Agent.

HARRISON TWEED, Treas.

## Locomotive Engines.

DANFORTH, COOK & CO.,

PATERSON, N. J.,

HAVING erected an extensive Shop, with the most approved Machinery and Tools, are prepared to execute orders for the various classes of Freight and Passenger Locomotive Engines and Tenders, in the best manner and on the most favorable terms.

Also, Stationary Engines, and the various Tools suitable for furnishing Repair Shops.

The business of Machine making, heretofore carried on by Charles Danforth & Co., is continued by the present firm, and all orders will receive prompt attention.

RICHARD NORRIS. HENRY LATIMER NORRIS.  
RICHARD NORRIS & SON,

LOCOMOTIVE STEAM ENGINE  
BUILDERS,  
SEVENTEENTH STREET, ABOVE CALLOWHILL,

PHILADELPHIA,  
ENGAGED EXCLUSIVELY IN THE MANUFACTURE OF

LOCOMOTIVES,  
RAILWAY TOOLS AND  
MACHINERY.

MANUFACTURE to order, Locomotives of any Arrangement, Weight or Capacity. In Design, Material and Workmanship, the Locomotives produced at these Works, are equal to and cannot be excelled by any.

## IRVING HOUSE, NEW YORK, BROADWAY AND TWELFTH STREET, ENTRANCE, 45 TWELFTH STREET.

THIS House is now open for the accommodation of FAMILIES and TRANSIENT GUESTS, and will be conducted upon the EUROPEAN PLAN.

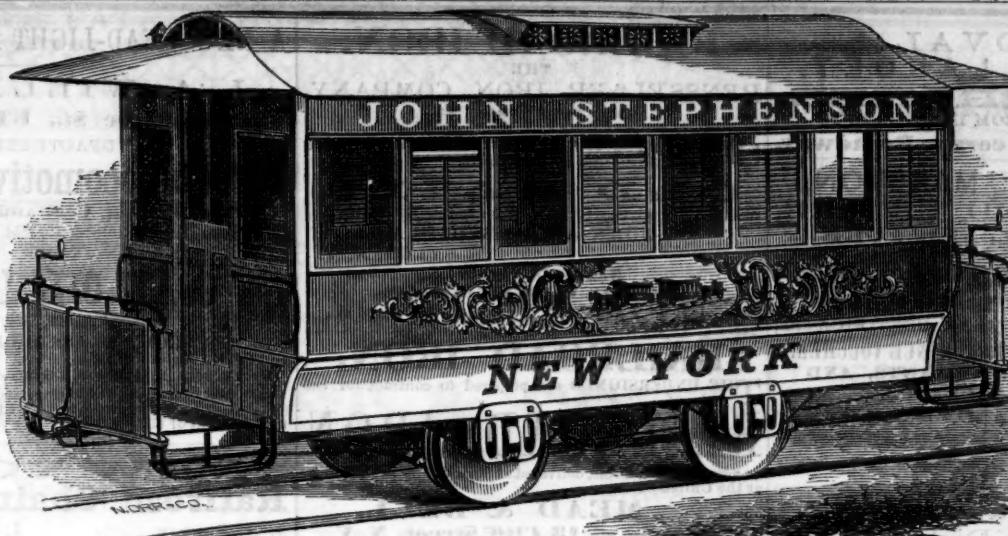
PROPRIETORS:

GEO. W. HUNT,  
Late of the Brevoort House, Fifth Avenue.

CHAS. W. NASH,  
Formerly of the Great Republic.

**CARS**

FOR  
TWO HORSES  
COMBINING  
ALL  
Valuable Inventions,  
**ELEGANT  
STYLE.**  
Light & Durable,  
**Full Size**  
AND  
REDUCED  
WEIGHT

**CARS**

FOR  
ONE HORSE,  
WITH or WITHOUT  
**Platforms,**  
OR TO  
SWING ON TRUCKS.  
—  
**EVERY  
STYLE AND  
VARIETY  
OF  
CONSTRUCTION.**

47 EAST 27TH STREET.

This Establishment commenced building STREET CARS in 1832, and is famed for superior ELEGANCE of workmanship and SUBSTANTIAL practical results.

Its location, in the PORT of NEW YORK, is most favorable for shipments, and its CARS, CONSTRUCTED in SECTIONS, may be ENTIRELY COMPLETED before being packed for transportation.

**PASCAL IRON WORKS,**

ESTABLISHED 1821.

**MORRIS, TASKER & CO.,**

MANUFACTURERS OF

Lap-Welded American Charcoal Iron Boiler Flues—from 1½ to 10 inches outside diameter, cut to definite lengths.

Wrought Iron Welded Tubes—from ½ inch to 8 inches inside diameter, with screw and socket connections, for Steam, Gas, Water or other purposes; also, fittings of every kind to suit the same.

Wrought Iron Galvanized Tube—strong and durable, designed especially for water purposes.

Cast Iron Gas or Water Pipe—1½ to 24 inches in diameter, and branches for same, etc.

Gas Works Castings, etc., etc.

**PHILADELPHIA.****Manhattan Oil Company,**

Office, No. 16 Broadway, NEW YORK.

JAMES M. MOTLEY, Vice Pres't and Treasurer.

MANUFACTURERS OF  
**MASON'S SPERM OIL,**

AND DEALERS IN

SPERM, WHALE, LARD AND OTHER OILS,  
For Railroads, Steamers, Machinery and Burning

**DELAFIELD & BAXTER'S,**

Late OGDEN &amp; DELAFIELD,

ROSENDALE CEMENT.

We are prepared to enter into arrangements for supplying our CEMENT for public works, or other purposes. We warrant it equal in every respect to any manufactured in this country. It attains a great degree of hardness, sets immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, on application at their office, by **DELAFIELD & BAXTER**, 104 Wall st.

The above CEMENT is used in most of the fortifications building by government.

P. W. HOLMES,  
STOCK AND BOND COMMISSION BROKER,  
**No. 51 EXCHANGE PLACE,**  
NEW YORK.

REFERENCES. DUNCAN, SHERMAN & Co., New York.  
L. SEYMOUR, Pres't Bank North America.  
AMERICAN EXPRESS Co., New York.  
Hon. ERASTUS CORNING, Albany, N. Y.  
Rep. G. VIBBARD, Albany, N. Y.  
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A. W. GREENLEAF & CO.,  
**BANKERS and BROKERS,**  
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BOUGHT AND SOLD ON COMMISSION.  
A. W. GREENLEAF. E. B. GREENLEAF.

SIMEON DRAPER, Auctioneer.

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OFFICE, NO. 36 PINE ST., NEW YORK.

**REGULAR AUCTION SALES**  
AT 36 PINE ST., EVERY DAY.

STOCKS and BONDS bought and sold at private sale  
Sale every day at 1 o'clock. See Catalogue.

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BANKERS,  
**41 & 43 WALL ST., N. Y.**

**GOLD, TREASURY NOTES**  
And all first-class SECURITIES  
**BOUGHT AND SOLD.**

**HENRY H. BOODY,**  
**STOCK BROKER,**  
12 WALL STREET, NEW YORK,

BUYS AND SELLS STOCKS, BONDS AND  
Public Securities of every kind, on Commission.

Refer, by special permission, to  
WM. A. BOOTH, Esq., 93 Front st., New York.  
GEO. A. COE, Esq., President of the American Exchange  
Bank, New York.  
ROBERT BAYARD, Esq., 12 Wall st., New York.  
S. J. TILDEN, Esq., 12 Wall st., New York.

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BOUGHT AND SOLD ON COMMISSION.

**EUGENE THOMSON & CO.,**  
Stock and Bond Brokers,  
41 PINE STREET.

STOCKS and BONDS Bought and Sold on Commission.  
**INTEREST ALLOWED ON DEPOSITS.**

EUGENE THOMSON. C. MILTON RUTTER.

**DUNCAN, SHERMAN & CO.,**  
BANKERS,  
Corner PINE and NASSAU Sts.,  
**NEW YORK,**

ISSUE  
CIRCULAR NOTES AND LETTERS OF CREDIT,  
FOR TRAVELERS,  
AVAILABLE IN ALL THE PRINCIPAL CITIES OF THE WORLD,  
ALSO, MERCANTILE CREDITS,  
FOR USE IN EUROPE, CHINA, etc.

**REMOVAL.**  
**P. W. GALLAUDET,**  
**NOTE BROKER,**  
 HAS REMOVED FROM 11 PINE ST., TO  
**No. 1 WALL ST., corner Broadway.**

**WILLIAM H. MARSTON,**  
**BANKER AND BROKER,**  
**No. 36 Wall st., NEW YORK.**

**UNCURRENT MONEY,**  
**TREASURY NOTES,**  
 UNITED STATES ONE-YEAR CERTIFICATES,  
 QUARTERMASTERS' AND ORDNANCE VOUCHERS,  
 SPECIE, LAND WARRANTS, AND  
 DOMESTIC EXCHANGE,  
**BOUGHT AND SOLD.**

STOCKS, BONDS AND GOLD bought and sold on Commission at the Board of Brokers.  
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GOVERNMENT CLAIMS, BONDS, QUARTERMASTERS' VOUCHERS and U. S. 6 PER CENT. CERTIFICATES.  
*Fire and Marine Insurance Stock and Script*  
**BOUGHT, SOLD and ADVANCED UPON.**  
 MERCANTILE PAPER AND LOANS NEGOTIATED.  
 INTEREST ALLOWED ON DEPOSITS.

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 39 WILLIAM STREET,  
 (FIRST BUILDING BELOW WALL STREET.)  
 STOCKS and BONDS Bought and Sold on Commission  
 MERCANTILE PAPER and LOANS Negotiated.  
 INTEREST ALLOWED ON DEPOSITS.  
 HENRY MEIGS, Jr. WM. ALEX. SMITH.

**SAMUEL HALLETT & CO.,**  
**BANKERS,**  
 58 BEAVER STREET,  
 NEW YORK CITY.

DEALERS IN  
**Foreign and Domestic Exchange,**  
 AND NEGOTIATORS OF  
**STATE AND RAILROAD BONDS.**

**REMOVAL AND CHANGE OF NAME.**  
 THE business heretofore conducted by A. BRIDGES & Co., at 64 Courtlandt st., will be continued by the same parties hereafter under the firm of—

**BRIDGES & LANE,**  
 at 50 Courtlandt, corner of Greenwich st.  
 New York, March 31, 1862.  
 See Advertisement. ALBERT BRIDGES.  
 JOEL C. LANE.

**CHAS. A. MEIGS & SON,**  
**BANKERS AND BROKERS,**  
 No. 50 EXCHANGE PLACE, N. Y.  
**STOCKS AND BONDS**  
 BOUGHT AND SOLD ON COMMISSION.

**MINING ENGINEER**  
 AND METALLURGIST.  
 A YOUNG gentleman just returned from Europe, a graduate of the Royal Mining Academies of Freiberg and Clausthal, offers his professional advice and opinion on the value of Mines, Mineral Lands and Mining operations generally.

Having directed his attention particularly to the smelting of ores and to the extraction of useful products from their natural mineral, he offers his services in this particular branch of the business, and would have no objection to give to a limited number of pupils private lessons on the subject of smelting.

For further particulars apply to  
**WM. A. KOBBE,**  
 3m21 No. 37 Murray Street, N. Y.

**RAILROAD IRON.**  
 THE  
**RENNSLAER IRON COMPANY,**  
**TROY, N. Y.,**

OFFER RAILS of their own manufacture deliverable as may be desired by purchasers.

**OLD RAILS**

received in exchange for new, or for re-manufacturing.

JOHN A. GRISWOLD, Agent,  
 TROY, N. Y.

New York Agency:  
**BUSSING, CROCKER & CO.,**  
 32 CHIF st.

**RAILROAD IRON.**  
 THE UNDERSIGNED are prepared to contract for the sale of

**RAILROAD IRON**  
 on advantageous terms, delivered at ports of England, Wales, or the United States.

**MEAD & BELL,**  
 13 CHIF Street, N. Y.

**RAILROAD IRON.**  
 ENGLISH and AMERICAN Railroad Iron for delivery in New York and other markets in the United States and England. Contracts negotiated by

E. A. & S. W. HOPKINS,  
 70 Beaver st., New York.

**RAILROAD IRON.**  
 2,000 TONS Railroad Iron, New York and Erie pattern, "Crawshay's" make,—50, 55 and 58 pounds per lineal yard, afloat, or in yard at Brooklyn, ready for immediate delivery; for sale by

FIRM, **THEODORE DEHON,**  
 May 8th, 1862. 28 Beaver st.

**RAILROAD IRON.**  
 THE undersigned, agents for the manufacturers, are prepared to make CONTRACTS FOR RAILS delivered free on board at ports in England, or ex-ship at ports in the United States

M. K. JESUP & COMPY,  
 44 Exchange Place.  
 New York, 1st June, 1862.

**RAILROAD IRON.**  
 3,400 TONS BEST QUALITY WELSH RAILS—T pattern—53 lbs. per lineal yard, for sale by

CHAS. L. PERKINS, or  
 E. LIVINGSTON,  
 54 Exchange Place.  
 Sm15

**RAILROAD IRON.**  
 THE subscriber is prepared to enter into Contracts for RAILS delivered at an English port or at a port in the United States.

JAMES TINKER,  
 54 Exchange Place,  
 NEW YORK.  
 Erie Rails, 57 to 58 lbs. per yard, on hand in NEW YORK and NEW ORLEANS.

MORRIS, WHEELER & CO.,  
 SUCCESSORS TO  
 MORRIS & JONES & CO.,  
**IRON MERCHANTS,**  
 MARKET AND SIXTEENTH STREETS,  
 PHILADELPHIA.

**IRON AND STEEL**  
 IN ALL THEIR VARIETIES.

BOILER PLATE, CAR AXLES,  
 BOILER RIVETS, RAILROAD IRON,  
 CUT NAILS AND SPIKES, PIG IRON, etc.

Having the selling agency of a number of the Rolling Mills, Furnaces and Forges in this State, orders for any description of IRON can be executed.

**RAILROAD IRON**  
 AND COMMON BARS.

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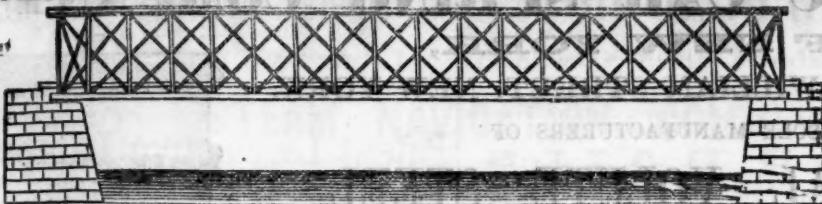
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500.	2	1	100 percent.
1,000.	4	2	100 "
1,500.	6½	3½	90 "
2,000, Practical point of Oiling.	9½	5	90 "
2,500.	13	7	85 "
3,000, Sperm entirely exhausted.	17½	19	75 "
			500 more revolutions, and 25 per cent less power exerted than the sperm.
3,500, Paraffine entirely exhausted.	14		

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I hereby certify that the above is a true copy of a trial of Paraffine Oil, manufactured by the Union Coal and Oil Company, of Maysville, Ky., as tried on my Patent Dynamometer, on the 20th day of September, 1858, showing that said Paraffine Oil contains 75 per cent. more lubricating properties than pure Summer Strained Sperm Oil.

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"This Machine makes the 'LOCK STITCH,' and ranks high, on account of the elasticity, permanence, beauty, and general desirableness of the stitching when done, and the wide range of its application."—(Report of American Institute, New York.)

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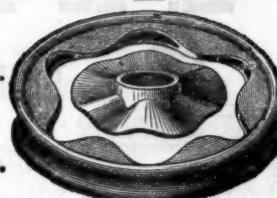
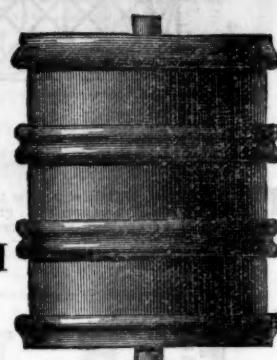
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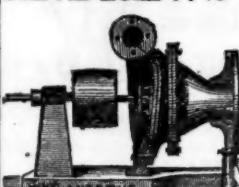
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127. " 18 " " 1/2 to 1.	139. " 32 " 1/2 to 1
128. " 18 " " 1/2 to 1.	140. " 32 " 1/2 to 1
129. " 18 " " 1/2 to 1.	141. " 32 " 1/2 to 1
130. " 18 " " 1/2 to 1.	142. " 32 " 1/2 to 1
131. " 18 " " 1/2 to 1.	143. " 32 " 1/2 to 1
132. " 18 " " 1/2 to 1.	144. " 32 " 1/2 to 1
133. " 18 " " 1/2 to 1.	145. " 32 " 1/2 to 1
134. " 18 " " 1/2 to 1.	146. " 32 " 1/2 to 1
135. " 18 " " 1/2 to 1.	147. " 32 " 1/2 to 1
136. " 18 " " 1/2 to 1.	148. " 32 " 1/2 to 1
137. " 18 " " 1/2 to 1.	149. " 32 " 1/2 to 1
138. " 18 " " 1/2 to 1.	150. " 32 " 1/2 to 1
139. " 18 " " 1/2 to 1.	151. " 32 " 1/2 to 1
140. " 18 " " 1/2 to 1.	152. " 32 " 1/2 to 1
141. " 18 " " 1/2 to 1.	153. " 32 " 1/2 to 1
142. " 18 " " 1/2 to 1.	154. " 32 " 1/2 to 1
143. " 18 " " 1/2 to 1.	155. " 32 " 1/2 to 1
144. " 18 " " 1/2 to 1.	156. " 32 " 1/2 to 1
145. " 18 " " 1/2 to 1.	157. " 32 " 1/2 to 1
1	